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A Course in Accounting

ENDEAVORING to run a business without adequate knowledge of expenditures and income is a sure method of courting disaster. Starting with the April 1 issue, the Journal of Electricity will present a course in simplified accounting especially adapted to the needs of the contractor-dealer.

Mr. F. V. Mitchell, who has been secured to conduct this course, studied under the Walton School of Commerce at Chicago, Ill. He

has had more than fifteen years of practical experience as a public accountant and has specialized in mercantile accounting. For the past several years Mr. Mitchell has devoted special attention to the matter of accounting as applied to the electrical business and especially as applied to contractor-dealers.

The series that he will present is based on his observations and experience in this work. It will be addressed to the special needs of the small electrical store and will provide the necesary information required to lay out a simple set of books that will meet the practical needs of the contractor-dealer. You will want to start with the first number and follow the course.

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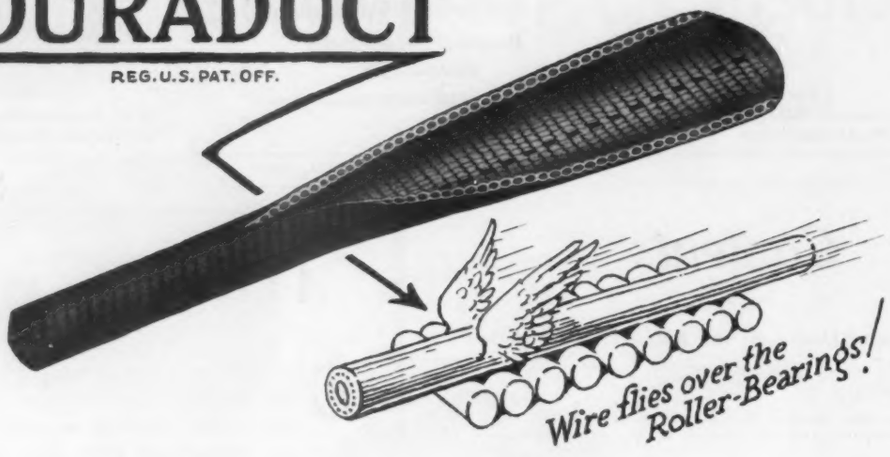

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A Public Service Conference

IT is a poor spirited young man who is forced to waste the moonlight of a summer evening in the unprofitable business of holding his own hand. The progress of the race—and his own suit—is furthered very little by ardent appeals heard only by the trees of the woods and his own ears. The first requirement of eloquence, if it is to result in matrimony, is an audience.

THE electrical industry has too often wasted its time in telling its own story to its own membership. A competent rehearsal is a fine and necessary preparation for the task ahead, but it is of little value unless the public performance actually comes off. This has been the theory back of the series of industrial conferences which, with more or less success, have concluded the program of the Pacific Coast Electrical Association conventions for the past few years. These meetings have been uniformly inspiring in the messages set forth, but not uniformly well attended by the industrial and business men of the community. Only a limited number of leaders of community thought can be personally conducted by their power company friends to these meetings—few otherwise take the time and undergo the expense to take in the meeting. The trouble is that they are not yet convinced of the vital common interest which exists between the problems of the electrical industry and their own—until they have once attended such a meeting, will probably not be wise enough to know that it would be worth their while attending one. This entertaining circle will probably always stand in the way of success of such a conference; the business man can undoubtedly best be hunted in his own lair, at his own conventions and gatherings.

THERE is a group of allied industries, however, whose common interests and problems are so vital that they could with great profit foregather at some single rallying ground for the purposes of mutual education and inspiration. These are the so-called public service companies. The water company, the gas utility, the street car system, the railroads and the power company have common problems. Alike they serve the public and are in turn regulated by its delegated commissioners; they face the same problems of maintaining satisfactory public relations and they suffer in the same way under the attacks of socialistically minded demagogues. When the existence of one is attacked, the safety of all is threatened. The factor of self-interest of each of these industries in the present day problems confronting them all is so great that they would without question welcome the opportunity to participate in what might be called a "Public Service Conference," sending delegates and assisting in the formulation of a program of action to safeguard their common interests. The first step of the electrical industry in facing the struggle before them during the coming year should be to enlist the active assistance of their natural allies. Why should not such a conference form the major feature of the 1924 convention of the Pacific Coast Electrical Association?

A Definite Step Toward Better Merchandising

THE electrical contractor-dealer has become a fixed institution. He is a very necessary economic factor and has a well defined place in the general scheme of business. This being established as a fact, it seems only good judgment to make sure that the contractor-dealer perform his function with the greatest efficiency. At the present time the selection of those who enter this field and their education in the business of serving the public is left almost entirely to chance and the hard knocks of the school of experience. It may not be impossible to take a lineman or a wireman and make of him a successful merchant, but the obstacles now existing in his way certainly retard his progress. And this retardance works to the disadvantage of the entire industry. Also, while the electrical dealer of this type is learning his trade, but not yet the master of it, the hardware merchant, the furniture trade and the department store, with merchandising experience alone, are entering and exploiting a field known for its technicalities. In a measure, it is like giving a child a delicate watch, a hammer and a screw driver and then expecting him to make of himself a watchmaker.

Would it not be better for the industry as a whole to combine on a comprehensive program, so prepared that it could be available to all, and then to see that all concerned were included within its scope? Sales would be more intelligently made, made with an understanding as to the customer's demands; wiring would be planned and executed for real convenience; manufacturers and all electrical merchandisers would benefit in volume and the consumer would really enjoy the comforts of electrical service.

Public Contact from the Woman's Standpoint

WOMEN'S votes have been looked upon of recent years with great respect by candidates for office—the woman's vote in the home is certainly the deciding factor in determining household policies. It might be of interest to consider what recognized methods of obtaining the woman's good will have been adopted by the electrical industry. She has been reached through newspaper and billboard advertising, she has been circularized, she has been visited by salesmen at the front door. Lecturers have addressed her clubs; they have also addressed her husband and left him to carry his own message, such as it may be, to his better half. The one thing that has not been done is to approach the woman on her personal side.

One of the most successful ways of reaching the good opinion of the average man is to make a personal friend of him. For this reason, the business man joins clubs and eats lunch in public—or golfs on a pleasant Thursday afternoon in the presence of his fellows. Why should not the women of the electrical industry similarly add their names to the membership roll of women's organizations and take part, at least so far as business hours will permit, in their activities? The usual woman's club holds afternoon meetings which would break badly into an office day, but these same organizations often have special sections for the study of civic and home problems which would welcome the services of a "business woman" trained in matters of special electrical interest and which meet at the convenience of their particular members; there are also luncheon and evening clubs among the women. The Women's Public Information committee of the Pacific Coast Electrical Association has recommended the greater participation of the women of the electrical industry in civic affairs. It is the part of the employers of these women to make such participation possible.

The Growing Interest in Electric Refrigeration

ELECTRIC refrigeration in the home formed a major topic of discussion at the recent convention of the Mountain States Ice Manufacturers' Association at Denver. They considered the widespread interest being shown in this most recent addition to electrical labor-saving devices to be a distinct menace to the supremacy of the iceman and by way of a counter attack, considered ways and means of improving their own service.

This is merely one symptom from the many which indicate that home refrigeration has advanced from the experimental class and is being generally accepted as an important factor in modern home comfort. In the Northwest, one of the larger power companies has organized a system of education for their salesmen in the selling of electric refrigerating machines; two California power companies have already added this appliance to their schedule of equipment to be pushed. The West was the first section of the country to introduce electric ranges on a large scale—the wide interest being shown in electric refrigeration indicates that it is now considering the possibility of taking a pioneer part in this field.

The Matter of Margins

A favorite complaint of the retail merchandiser in the electrical field is that the margin of profit allowed him between the wholesale price and the figure at which he must sell his goods to the consumer is too small. It is the exceptional man who confesses that in spite of the handicap, he is able to make a living at the work—and even this exception in most cases will admit that it is only through his unusual enterprise and skill that he thus succeeds in making the proverbial two ends meet.

On another page of this number, Mr. Kincaid has made a masterly analysis of the present contractor-dealer problem. He will follow it up in the next issue with various concrete suggestions as to what might be done to better the situation. Among other aspects of the problem, he takes up in this issue the subject of margins and he brings out very clearly the mistake in the popular attitude in this matter.

Without discussing the mathematical point at which a margin should be fixed, he points out that from every standpoint, it is undesirable to make the merchandising of electrical equipment so attractive that anyone could make a profit in the business. This would multiply the confusion by attracting the ignorant and incompetent to the field, resulting in turn in cut prices and in a smaller profit for all concerned. The salvation of the system is to weed out all but the better types of merchant, gradually making the electrical contractor-dealer the specialist which he should be and a really satisfactory outlet for the electrical trade.

The Way to Get Something Accomplished

WHEN Los Angeles wanted a harbor, a group of Los Angeles men got together and after discussing the needs of the situation, subscribed $200,000 on the spot to study the problem. The port of Los Angeles is now one of the features displayed with the greatest pride to visiting tourists.

The Sacramento Valley is now in need of a unified development of the Sacramento River to meet the requirements of flood control, shipping, irrigation and power. There is a tendency among those most concerned in this problem to hold meetings discussing its various phases and then to leave matters, in the hope that a state commission will be appointed in the wisdom and good time of an all-wise Providence and the governor, which will look into the matter and actually devise the working plan necessary to go ahead.

There are large business interests in the valley, however, whose welfare is endangered so long as this problem remains unsettled, who are not satisfied with the outlook for accomplishment under this program. They would like to see something done and they are willing to follow the Los Angeles example by digging down into their pockets in order to appoint their own engineers to analyze the situation. They believe that as soon as the valley actually knows what it wants, what is advisable and what is feasible, the concrete carrying out of the plan will be a straightforward and comparatively simple matter. So long as they continue to talk—and to wait for the state to make the investigation—nothing very much will happen. The old adage still holds. The way to get something done is to do it yourself.

No Justification for Cut-Price Merchandising

VARIOUS branches of the electrical industry gaze with varying thoughts upon the efforts of central stations to perform a merchandising function. Some feel that the central station is in a particularly fortunate position for the performance of this sales service and that, inasmuch as service is the real keystone of merchandising, they should actively engage in retail sales effort. Others feel that the field of merchandising should not be entered by others than those whose business is solely the performance of a dealer's function. Probably the best answer to the problem is to be found in those sections of the country where power companies have for years maintained a retail sales department. An analysis of the general retail merchandise conditions in those sections, reflecting either success or failure of utility merchandising programs, will serve to prove the contentions of one side or the other.

There is, however, one practice, not uncommon in central station merchandising programs, that appears to be unsound and that should consequently be discouraged. There seems apparent no reason why a central station should sell merchandise, no longer in the pioneering stage, of known quality and of established price, for less than the manufacturer's list price. To do so is destructive in every way. The consumer, instead of feeling that a bargain has been obtained, feels that the original price was too high and that an undue profit was being exacted. Dealers, who because of lesser buying power and other reasons, are unable to meet this sort of competition—which is really not competition—are placed in an unfair position before the buying public, and manufacturers' sales are impaired because of the unsavory reputation that generally attaches to a cut-price article. The plan of cutting prices is destructive and not constructive and as such should be discouraged.

Make the Smiles Campaign A Company Policy

EVERY company has a certain code of procedure which is explained to each incoming employee and which he must learn before he can become a full-fledged citizen of his new job. This covers a wide field, as a rule, from such practical matters as where you hang your hat to the policy of the company in dealing with its competitors. Quite as important as the knowledge of how long is allowed for lunch, however, is the initiation of the new man into the spirit of the electrical industry. And that spirit is best exemplified by the aims and principles of the "Smiles" movement.

It should be understood that no man goes on the salary roll of a power company, electric jobbing house or contractor-dealer until he has had explained to him the idea back of the little red button and until he has signed his name on the dotted line as a life member of the Courteous Service Club.

This movement was started by the Pacific Coast Electrical Association and temporarily the supply of buttons and cards is limited to the territory covered by that organization. It is too good an inspiration to stop here, however, and the other sections of the western region have already taken it up. It has, indeed, been receiving national publicity and there is every evidence that this epidemic of smiles will become a national affair. When the initiation of every new employee into the electrical industry the country over includes a training in the spirit of courtesy, there will no longer be any problem of good will to consider. The public will be smiling back.

CURRENT COMMENT

Industrial democracy is heralded by the Seattle Post-Intelligencer in an editorial which commends the employee-stock selling policy of Armour & Company. The editorial is as follows:

A Parallel in Public Ownership

Ten years ago the great house of Armour & Company was a private corporation. All of the stock was owned by members of the Armour family. Is it a private corporation today?

Today it has seventy-seven thousand stockholders. Of these, forty thousand are employees of the company who have invested their own savings in the business.

Moreover, the company is owned in small blocks. There are seventy thousand stockholders owning less than twenty-five shares.

An interesting process of transformation.

A hundred and fifty years ago this nation taught political democracy to the world—the passing of power from a king to a legislature of the people.

Are we to teach the world industrial democracy as well—the passing of ownership and power from a few kings of finance into the hands of thousands of citizens, the new owners and masters of business?

Some day the forty thousand employee-stockholders of Armour will be doubled. Some day the workers will own not half, but all the stock of Armour and thousands of other big industries.

Thus, without bloodshed or revolution, the goal of industrial democracy will be won.

Under the title "Real Public Ownership," the Washington Committee on Public Utility Information gives some figures on the policy of the Southern California Edison Company:

Ten years ago the Southern California Edison Company was a comparatively close private corporation, a few individuals owning all the stock.

Is it a private corporation today?

It is not. Today it has $67,000 stockholders, 90 per cent of whom reside in Southern California, and of which 4,500 are employees.

Moreover, the company is owned in small blocks, as may be seen from the fact that over 39,762 have an average investment of $300 each; 12,462 have an average investment of $500 each; 5,900 an average investment of $1,000 each; 4,750 an average investment of $1,500 each; 1,450 an average investment of $2,500 each; 673 an average investment of $5,000 each, etc. Of the 67,000 stockholders approximately 38,000 are men, 27,000 are women, 1,500 children and 500 estates.

This is an interesting process of transformation, which compels us to ask:

Are we to teach the world real public ownership—the passing of ownership and power from a few kings of finance into the hands of thousands of citizens, the new owners and masters of business?

Some day the number of customers and employee stockholders will reach 100,000 and that not far distant, as the company is adding about 1,000 new stockholders per month.

Thus without bloodshed or revolution the goal of real PUBLIC ownership will be won.

Is there not a real parallel between the two cases?

Within the past month a scholarship prize of $1,000 has been offered by the Northwest Electric Light and Power Association for the best essay written by a high school student in the State of Washington on the subject of "State Regulation of Public Utilities." The proposal was approved by E. V. Kuykendal, director of the state department of public works, who states that he has long believed that the subject of state regulation should be a subject for school study, and was accepted by Mrs. Josephine C. Preston, state superintendent of public instruction. When it reached Seattle, however, the county superintendent of schools refused to admit King County students to the contest, on the ground apparently that thought on this subject would be likely to prejudice the student against public ownership. The controversy has furnished material for a fiery exchange of compliments between the Seattle Post-Intelligencer and other newspapers. A recent full-page editorial from the Bellingham Labor World entitled "A Class in Truth, Justice and Public Service" deals lightly with the evidence as presented to date:

Is This a Case of Corrupting the Young?

Today, having in mind a thought for the welfare of ambitious youth struggling for education, we call the class to order and likewise call the roll:

"A. S. Burrows, King County Superintendent of Schools!

"Howard Fisher, Pierce County Superintendent of Schools!

"J. Newton Colver, Seattle Post-Intelligencer staff!"

All present! Be seated, gentlemen.

* * *

We trust that you are here with open minds; that none of you contemplate running for some new political office and that nothing is further from your inmost heart than to seek personal advancement at the expense of sons and daughters of workingmen of Washington. Because—we can do no better than quote one of Mr. Colver's interesting news reports—"It has long been a rule that the schools are not to be open for any group or institution seeking to serve a selfish or personal end."

We mention this, not through any desire to offend—rather it is our aim that this morning's class shall seal a friendship and not engender hatred—but because it has been hinted, of course by those who know no better, that certain of the students present today aspire to state preferment and conceive this to be an opportune moment to "jump on the band wagon," to use the vulgar parlance of the hoi polloi.

* * *

What we have immediately in mind for discussion is the proposed disbarment of high school students of King and Pierce counties from an essay contest, the subject being "State Regulation of Public Utilities" and the prize a $1,000 scholarship.

Will Mr. Burrows kindly stand up!

Now, Mr. Burrows, you have stated your position in this matter: "I noticed that there was no bibliography offered or pamphlets to be furnished by the state school superintendent on the public ownership side of this question."

And it is for this reason, we presume, that King County boys and girls are to be disbarred.

This analysis of the situation is hardly up to the scholastic standards of the state and we can grade it little higher than "Z"—"Y" possibly, but no better.

Publicly owned utilities, Mr. Burrows, are not subject to state regulation. In what way, then, is a student to introduce a mythical condition into a thesis of business facts and concrete problems? Where, indeed, is he to gather his data on something that does not exist, unless possibly, it be from the soaring imagination of the Post-Intelligencer?

It may be that you have in mind the NECESSITY of state regulation of publicly owned utilities, desiring common justice for private companies, protection for their investors and a better service for the public, but if this be the case we hardly believe that your attitude would meet with the unqualified approval of Mayor Brown, Councilman Erickson, J. D. Ross, Homer T. Bone and various other illustrious names in the municipal field.

We have no desire to be harsh with you, Mr. Burrows, but we must insist upon an application of common sense to the problems of the day and we expect better things in the future.

Be seated.

* * *

Stand up, Mr. Fisher!

The manner in which you have worked out this problem, Howard, is positively disgraceful and shows an incredible failure to grasp the very first principles of the issue at stake. We will, therefore, refrain from embarrassing you by grading it at all for the reason that the alphabet stops at "Z" and we have not yet heard today how far below that the German mark is quoted. We take it that you want to know:

"If a student wrote a contest essay attacking private ownership and favoring public ownership, would this association . . . give him the $1,000 scholarship?"

No, Howard, it wouldn't.

Nor yet would it award him the scholarship were he to write an essay attacking public ownership and favoring private ownership. Nor yet, again, would he receive the scholarship for a dissertation upon the best method of extracting sunbeams from cucumbers, regardless of the beauty of his rhetoric, the elegance of his diction, the grace of his literary style.

No, strange as it may seem to you, Howard, he would receive the scholarship for none of these efforts for the obvious reason that none of them are designated as the subject matter of the contest, and it still remains a deplorable fact in these degenerate days that the man who pays the piper has the right to call the tune.

We are sadly disappointed in you, Howard, be seated and try to do better or we will be forced to report you to your parents.

* * *

Mr. J. Newton Colver, stand up, please!

Take that smile off your face, Newton, we've had about enough buffoonery for one day and, besides, we rather suspect that you have hocus-pocussed these two boys and let them in for all this mess and trouble. We don't want to see it happen again or we'll certainly talk to Mr. Hearst about it.

We have right here your little essay, "The Seattle Post-Intelligencer" of February 22. It is very good indeed in point of diction, style and spelling but it does not seem to make sense at all. Here, for instance, is a heading: "Power Trust Plans Lessons for Schools" and, right beneath in the same column with it, a news item which reads:

"U. of W. students will construct a model of the Skagit power project for the annual Engineers' Open House" and so on.

Do you mean to stand there, Newton, and tell us without a blush that presumptuous propagandists of municipal ownership have the brazen effrontery to invade the sacred cloisters of this holy temple with their insidious doctrines, plastering Ross's estimates, Brown's promises, Erickson's invectives all over these venerable walls! Beelzebub blaspheming at the very altar were as nothing to this!

Now, there's no use beginning to whimper that this is a publicly owned enterprise and that you thought that that was different, because when we turn to page 12, here is what we find:

"How one of the country's oldest and richest corporations is aiding deserving students at the University of Washington to pursue their studies is revealed in the announcement that Melville T. Perkins of Tacoma has been awarded the E. I. duPont de Nemours & Co. fellowship in chemistry. . . . There are many problems to be solved and it may be that we may uncover a new Edison here in the Northwest."

Now stop that snivelling, Newton, because it won't do you a bit of good. You know as well as we do that this is none other than the Powder Trust and that its researches may result in a new super-powder, which, exploding by accident, may blow the whole city of Seattle right out into the middle of Elliott Bay.

But, before we leave this, which of you boys is going to swear that there is not in King County or the high schools of Pierce a youth with latent ability enough to rise to immortal heights as the world's greatest authority on regulation and legislation concerning railroads, telegraphs, telephones, water systems, power companies and all other great utility enterprises,—a boy who needs but the chance, the incentive to develop such ability and fulfill his destiny to the pride and glory and joy of all of us?

Speak right up, gentlemen!

And which of you will take the responsibility of denying him such a chance?

We are not through with you yet, Newton. We now turn to your editorial page with its noble heading:—"TRUTH—JUSTICE—PUBLIC SERVICE." Let there be silence while we quote from an editorial entitled, "Be Just to Oil Industry."

"The oil industry, the basis of our present day civilization, represents an investment of $8,000,000,000 devoted to the public service. . . . The whole industry must not be made the plaything of demagogues and cheap politics." We would like to reproduce the entire editorial but space forbids.

Eight billion dollars! Demagogues and cheap politics!!

Boys, there are more than SIXTY BILLION DOLLARS invested in the steam railroads of America alone—not to speak of the colossal sums tied up in telegraph, telephone, gas, water, street-car, electric light, electric power and other great privately owned organizations—all, too, devoted to the public service.

Is this a subject unworthy of consideration and study and thought? Are these momentous problems of finance, of law, of service to be withheld from the rising generation and hidden, like an obscene novel, from their sight?

Not on your life, Mr. Colver!

Not on your life, Mr. Burrows!

Not on your life, Mr. Fisher!

"TRUTH—JUSTICE—PUBLIC SERVICE," Mr. Colver. Read it again!

Turn to the right-hand column of your editorial page. There, under the heading "Democracy Begins in the School Room," writes Dr. Frank Crane:

"THERE IS BUT ONE PLACE WHERE THE WILD THEORIES OF HALF-BAKED ENTHUSIASTS CAN BE CORRECTED: IT IS THE SCHOOL ROOM. . . . For every dollar invested in our public schools, we should invest ten: for every dollar paid in salaries, we should pay ten: for every teacher now employed, we should have ten." Would it be sacrilegious for us to add: "For every scholarship now given, we should give ten"?

You may be seated, Mr. Colver.

* * *

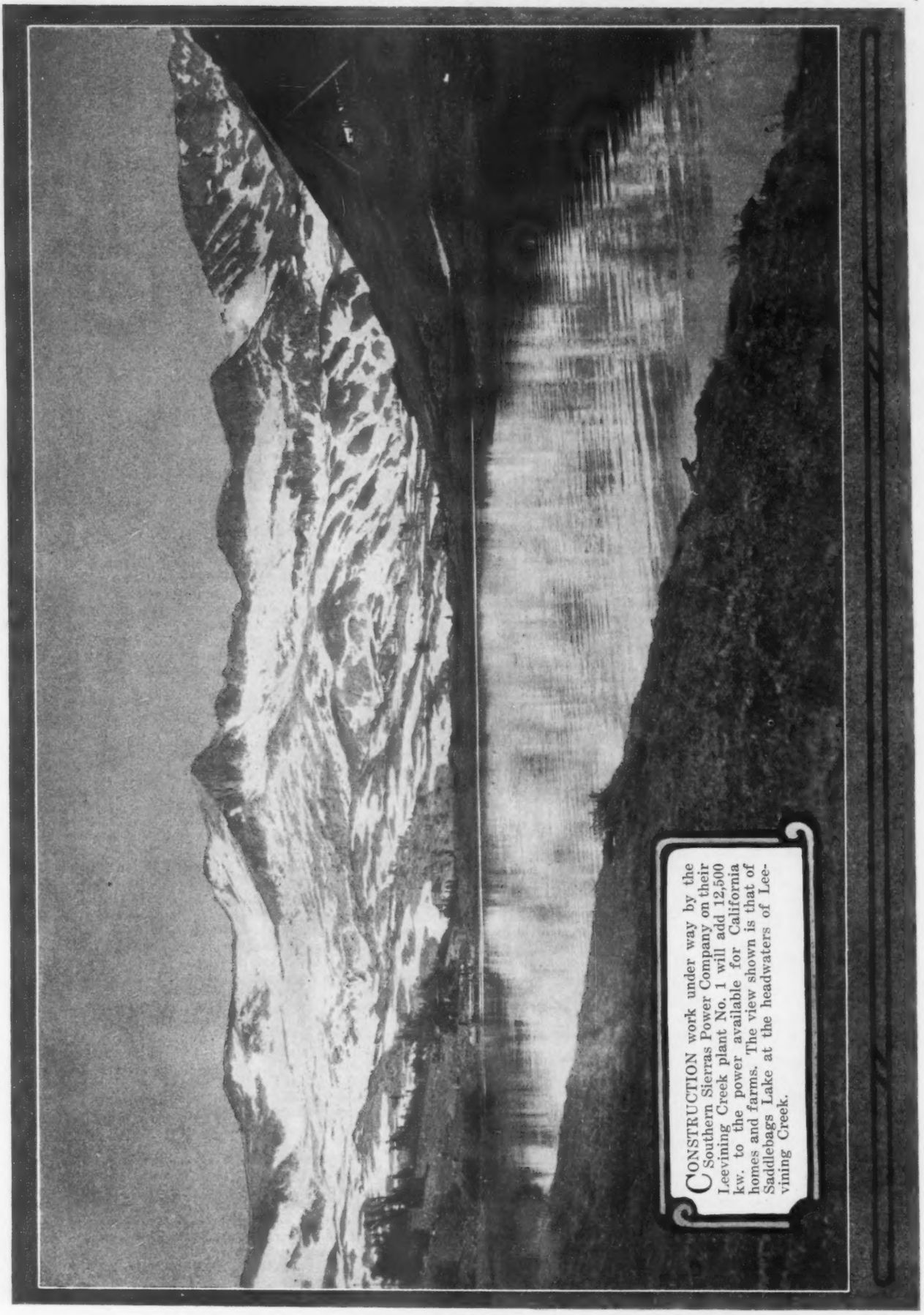
Although the theory and practice of private ownership and the theory and practice of public ownership have no place whatever in the scholarship contest, there seems to be a fear that public ownership shall not be done full justice. And yet, which member of this class would lend the stamp of official approval to a state-wide contest along similar lines that would have for its subject, "The History, Facts, Figures and Operation of Municipal Utilities as Exemplified by the City of Seattle"?—the Cedar River dam, the ferry system, the street-car lines, the Skagit hydroelectric project and all the rest of them—what they cost the taxpayers of Seattle and what they mean to the taxpayers of the state? All interspersed, of course, with liberal quotations from what Mr. Brown has to say of Mr. Lundin. what Mr. Erickson has to say of Mr. Brown, what Mr. Tindall has to say of Mr. Ross and so on down throughout the sorry mess!

Truth! Justice! What worse could be feared?

But let it all pass! The sands of time are sinking fast and our little class is drawing to a close. If, for a moment, murky intrigue hides the glory of the sun, its strong rays will soon break through and Truth and Justice and Public Service, now obscured, will light up all the heavens.

Let our minds, therefore, shed their gray ashes and glow serenely in the faith that that which is right shall triumph; and that which is wrong shall perish.

Farewell, gentlemen, and peace be with you.



CONSTRUCTION work under way by the Southern Sierras Power Company on their Leevining Creek plant No. 1 will add 12,500 kw. to the power available for California homes and farms. The view shown is that of Saddlebags Lake at the headwaters of Leevining Creek.

Can the Contractor-Dealer Be the Retail Outlet for the Industry?

By E. A. Kincaid
Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

THE future of the contractor-dealer is one of the most serious problems confronting the electrical industry. His position in the distribution plan is a debatable question. In this article Mr. Kincaid analyzes the reasons for the present agitation regarding the contractor-dealer. In his next article he will present his solution of the problem.

IMPORTANT as are the problems relating to the movement of electrical products from the manufacturer to the jobber, they are almost trivial when compared with those relating to the distribution from jobber to consumer. When the great flow of electrical products reaches the jobber the stream divides and thereafter the problems of the electrical industry must be faced from two essentially different angles. A large portion of all those goods that come into the hands of the electrical jobber is moved by him to the immediate consumers such as power companies, electric and steam railways, municipal electric light plants and great industrial corporations such as lumber manufacturers. They are the ultimate consumers of these goods and involve no problem relating to retail outlets.

Another great stream of goods flows from the jobber to retail outlets such as department stores, furniture stores, hardware stores and electrical stores, generally referred to as contractor-dealer establishments. Of these several retail outlets the only one that is purely electrical in character, the only one that confines itself to electrical goods and has all of its relations with the electrical jobber, as distinguished from other types of jobbers, is that of the contractor-dealer.

Because of the fact that the contractor-dealer specializes in electrical goods alone he is identified, part and parcel, with the entire mechanism for the marketing of electrical products. Around him there center many of the most serious problems of the electrical industry and for this reason it is now essential to make an analysis of the place of the contractor-dealer in the scheme of things electrical.

The question that first presents itself for consideration is this: What is a contractor-dealer? To begin with, one might say with perfect safety that he is an individual or firm that provides a retail outlet for electrical appliances. These fall into two main groups, both of which have the characteristic that they may be connected with the electric circuit and are, properly speaking, appliances. One group may be described as consisting of heavy appliances such as electric ranges, washers and ironers while the other includes light appliances such as electric flatirons, electric fans, various utensils used in preparation of meals, certain toilet articles, and so on. This list is not intended to be exhaustive. It should serve, however, to point out the distinction between the two great classes of appliances for the purpose of bringing about an understanding of problems relating to them.

In addition to appliances, the contractor-dealer provides a retail outlet for certain other lines such as fixtures and radio goods and all those materials which are ordinarily used in connection with the wiring of residences, office buildings, hotels and so on. It is important to note that the first two groups are essentially different from the last named in that the former constitute merchandise that must be sold over the counter to customers or by house-to-house solicitation. The third group is sold by the contractor-dealer in his capacity as a contractor and installed by him under contractual arrangements with owners of homes, office buildings, hotels and the like. Wiring materials of all sorts do not involve a merchandising problem in the same sense as do other goods carried by the contractor-dealer.

It may be said, therefore, that the contractor-dealer provides a retail outlet for electrical merchandise and wiring materials. He carries two essentially different lines of goods and this results from the fact that the contractor-dealer attempts to combine two basically different types of activities. He may be described as a cross between the contractor pure and simple and the electrical merchant. This hybrid character is at once the explanation of most of his own problems as well as those of the jobbers and manufacturers who look to him to provide a way to market.

There is a wide range of opinion as to the contractor-dealer and no factor in the electrical industry has come in for so much criticism. The problem here to be faced arises from the necessity of separating the valid and sound criticism from that which is spurious and unjust.

The opinion of well informed and able men in the electrical business varies widely. Some hold that the contractor-dealer is neither contractor nor merchant but an economic incongruity, a manifestation of industrial change and a product of undirected growth and expansion of the industry. Others hold that he is the logical outlet for a great variety of electrical goods, that he should be fostered and encouraged as an indispensable factor in the marketing of electrical products, and that his shortcomings are largely the result of practices indulged in by manufacturers and jobbers on the one hand and certain

parasites, generally described as "curbstone" contractors and "pirate" dealers, on the other. The truth must be found somewhere between these two extreme positions, but not necessarily midway between them.

Defining the Contractor-Dealer

When it comes to a purely academic definition one might say that the contractor-dealer is an electrical merchant who also engages in contracting but for the fact that, just as often, he is primarily an electrical contractor who engages in merchandising on the side. When the actual conditions are faced the latter statement appears to be nearer the truth than the former, save that many will take exception to the word "merchandising" on the ground that it is something that the contractor-dealer knows nothing at all about. After all, the definition of the term contractor-dealer must be given in a purely practical way.

When viewed from the standpoint of actual conditions the contractor-dealer is found to be a person with more or less technical knowledge of the wiring of buildings. He may be a graduate pole-climber or lineman and he may have an excellent technical knowledge of standard wiring requirements, specializing in large contracts such as those having to do with the wiring of great office buildings. On the contracting side, therefore, one meets with a vast range in the calibre of men described as contractor-dealers. On the merchandising side it may be said that the contractor-dealer has but little equipment for his work. Some of them admit that they are without such equipment and that they make no effort to obtain it. Their deficiency in this respect may be ignored or it may be met in some fashion such as engaging a man with mercantile experience and training to administer the dealer part of the business.

Generally the contractor-dealer is a person of a mechanical turn of mind and as a result his interest is chiefly in the contracting side of the business. By training and experience his psychology is such that he is not readily able to think in terms of merchandising. He fails, generally, to grasp the fundamentals of a mercantile business and he does not conceive of his own business as an important link in the whole chain by which goods move from the factory to the ultimate consumer. Having none of the natural or instinctive qualities of the merchant and being recruited, as a rule, from the staff of some contracting wireman, his attitude toward the electrical industry is detached and isolated. Please note that I have used the qualifying terms, "generally" and "as a rule," for I do not propose to engage in indiscriminate condemnation of the contractor-dealer. His side of the case shall be considered in due time, and it will then appear that there are some notable exceptions which do not necessarily prove the rule.

The Volume of Trade to Be Handled

To understand the present status of the contractor-dealer it is necessary to know **how he came into being.** In the first place, it must be understood that the development of the electrical manufacturing industry has been rapid. The following value of products turned out by the manufacturers of things electrical in recent years is substantial evidence on this point:

1909	$221,308,563.00
1914	335,170,194.00
1919	997,968,119.00
1921	883,985,443.00

When it is understood that the decline in the value of production from 1919 to 1921 is due to the price recession that set in in June of 1920, it must be realized that the industry has been making rapid strides. The increase of production for 1919 over that for 1914 amounts to 197 per cent. These figures include all sorts of electrical products, appliances along with the others, but it is with the latter that the contractor-dealer has most to do. It is not easy to give an accurate figure as to what portion of the total output goes to the consumer by way of the contractor-dealer outlet. Some jobbers assert that not more than 40% so moves while others place the figure as high as 60%, with the amendment that the volume of goods so moving is declining.

Whatever the volume of goods finding an ultimate market through the efforts of contractor-dealers, it will be admitted that all of such goods are still subject to the characterization that they are specialties rather than staples. While electric appliances come nearer to being staples in California than in most other states, and what is true of California in this respect is also true of Pacific Coast territory in general, the fact remains that there is much yet to be done before appliances, .taken as a whole, may be regarded as staples in the sense that the word is generally understood in mercantile circles.

Specializing Without a Specialist

The contractor-dealer is himself a sort of specialist within certain limits. At any rate he is a product of special conditions and it was but natural that he should respond to the suggestion that he should open a sort of specialty shop where electric goods only were for sale. Now this development would have been as effective as it was logical, if the contractor-dealer had been a specialist in merchandising rather than in contracting. Be that as it may, the idea grew apace that the contracting wireman might work along the same lines as the plumber who keeps a shop and a small line of bathroom fixtures and related goods. The contractor also had the example, still common in small towns, of hardware stores with a plumbing shop in the rear or nearby.

The contractor-dealer was in the habit of buying materials required in wiring houses and this brought him into contact with the jobber. The latter was not slow to suggest to the contractor that he might very well carry a small stock of appliances and thus make an additional profit through merchandising. When the growing volume of output of manufactured goods is taken into account, it was but natural that the jobber should feel the pressure for more outlets and that he should encourage the contractor to become a sort of dealer. The jobber was in a fair way

to do this, provided he was willing to extend credit to the contractor until he might get on his feet. Thus it came about that a variety of factors worked together to create a new type of retail outlet, a sort of infant industry, so to speak, which has not shown a marked tendency to grow out of its swaddling clothes. At any rate it appears that jobbers are still carrying many contractor-dealers.

The Responsibility of the Jobber

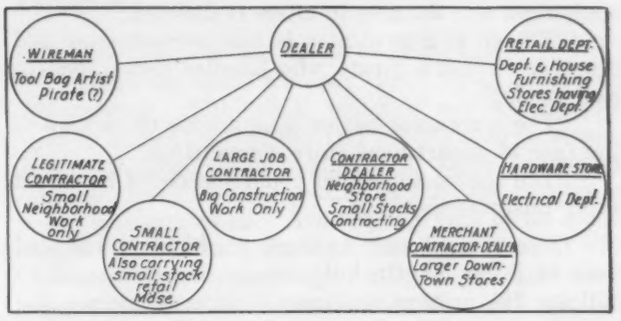
The part played by the jobber in bringing the new business, that of contracting and dealing in electrical goods, into being was logical and justifiable. Electrical jobbers knew of other types of retail specialty stores. They also believed that a specialist with some technical knowledge of electrical goods must handle them, if they were to be set forth to consumers in their proper light. Finally, the jobber desired to see his grip on the trade strengthened and this could be done best through retail establishments that looked to the electrical dealer and none other for goods. The case for the jobber is clear enough. He was working along right lines, but for the fact that he had poor material to draw upon. He wanted a merchandiser and he had to make use of contractors. These responded no more than partly to treatment designed to make them merchants. The jobber would probably have had much better success had he recruited from the salesmen within his own establishment, but instead he followed the line along which matters appear to be moving more or less automatically.

Thus there has developed a body of tradesmen known as contractor-dealers. With the growing volume of output of electrical manufactures, there was placed upon the whole marketing mechanism of the industry a heavy burden and it proved to be a bit too heavy for that part of the mechanism in charge of contractor-dealers. This fact was most obvious throughout the Pacific Coast territory at the height of the wave of prosperity that terminated in 1920 and it was again apparent in the business recovery that terminated in April, 1923. Whenever the volume of business rises, the machinery is overloaded, stresses and strains become apparent and then we hear a great deal about the contractor-dealer problem. This is just another way of referring to retail outlets for electrical goods.

Does the Contractor-Dealer Meet the Need?

Having considered in this brief and general way forces that brought the contractor-dealer into being, it is now in order to ask **whether this fairly recent addition to mercantile ranks functions.** It has already been intimated more or less directly that the contractor-dealer as a retail outlet does not function adequately when business is pressing. But it does not follow forthwith that the contractor-dealer system of retailing is to be held responsible for this situation. It is necessary to keep in mind the rapid growth in the volume of electrical manufactures. Considering this fact, it is but natural to suppose that these goods found their way into market by means of a marketing mechanism which was not yet fully developed and was therefore but poorly prepared to receive the vast flow of goods. This is all the more the case when it is realized that these goods consisted of specialties which called for a highly developed system of merchandising.

Considering the movement of goods up to and including the jobber it may be said that the marketing mechanism responded fairly well. Beyond that point it was woefully inadequate. The great flow of things electrical consumerward found no thoroughly established system of retail outlets ready to absorb them. While this is not a situation for which contractor-dealers in the aggregate are responsible, it



The field of electrical retailing is recruited from various sources and it takes various forms in its functioning.

goes far toward explaining the tendency of electrical goods to move to consumers by new and strange routes. Thus, it follows that the participation of department stores, hardware stores and others in merchandising electrical goods must be looked upon as the direct consequence of the inadequary of the outlets provided by contractor-dealers. Had these outlets been equal to the situation they would have held the business.

Not Too Late to Mend

It is my contention that the inadequacy of the contractor-dealer system of distribution is to a large extent the result of the fact that these outlets were not developed in time; that the men in charge of them were not recruited from the right source; that these outlets had not had sufficient time to find themselves and to make their place in the mechanism of distribution. When all the charges against the contractor-dealers are taken into account there is not evidence sufficient to warrant the conclusion that they cannot be made to function and that they will not find a permanent place for themselves in the marketing mechanism for electrical goods. Any such conclusion bears the earmarks of hasty analysis. Hence my answer to the question at the beginning of this section of the discussion is that the contractor-dealer does not function, but that it does not follow from this that he cannot be made to function and that he will not make a place for himself in the electrical field.

Opinions of the Trade

Let us consider somewhat more fully the present situation. I have discussed this question, "Does the contractor-dealer function?" with a variety of men, among them the most intelligent in the electrical dis-

tributing business in Pacific Coast territory. I have put this question to representatives of other branches of the electrical field and I have had many interesting and pointed responses, such as the following:

"The electrical dealer (contractor-dealer) is an economic impossibility."

"The contractor-dealer is a good outlet for supply lines used in contracting."

"Contractor-dealers provide a good retail outlet in small towns."

"The contractor-dealer does not provide a good outlet for heavy appliances."

"The contractor-dealer as a retail outlet for appliances and fixtures in cities is doomed."

"The contractor-dealer is just a contractor and often he is just a pirate who handles non-standardized goods."

"The contractor-dealer cannot hope to survive in the face of department store competition."

"The contractor-dealer could succeed if he would apply business methods."

Observations such as these might be reproduced here at great length, but enough has been said to indicate the present pessimistic attitude toward the logical retail outlet for electrical goods. Clearly it is the opinion of the best informed that at present these retail outlets do not function. But one must go behind these remarks and analyze the point of view that actuates them. This will require some consideration of the word "function." What is meant by "function"? As employed in this discussion it may be said that a contractor-dealer functions when he provides an efficient outlet for electrical goods. An efficient outlet is one that moves the goods to the consumer in such a way that they stay sold and the consumer's good will is retained while at the same time the outlet is enabled to earn a reasonable profit.

Turnover the Test for Efficiency

The two prime tests of an efficient contractor-dealer are buying-ability and selling-ability and of these two let it be said that salesmanship is not one whit less important than "buymanship." The contractor-dealer has a given amount invested in stock. The most important matter with which he is concerned is the rate of return on that investment. Suppose that he makes a net return of three per cent on each turnover of his stock and is so fortunate as to turn his stock four times each year. Is it not clear that his net is twelve per cent?

The rate of turnover is the function of two variables—buying and selling, purchases and sales. Poor buying will slow up the turnover of stock in the face of the very best salesmanship. Poor buying means buying goods in excess of actual needs and the buying of goods that do not sell. And here it may be said that manufacturers and jobbers alike are guilty of applying pressure to induce the contractor-dealer to overstock. This is not so much an indictment of the former as it is an evidence that these retail outlets do not yet command the right type of brains. However, it is true that quantity discounts are used as a means to lure many retail electrical merchants to their ruin and incidentally to burn the fingers of those who make use of the system.

How It Is Figured

An efficient dealer in electrical goods resists all devices calculated to slow up his turnover of stock. As one authority on the subject has aptly said, "The average inventory is the denominator in the turnover fraction . . . the numerator of the turnover fraction is the annual volume of sales and success in retailing depends on moving the goods from the shelves once they are bought." All this is a, b, c to the well-informed business man, but the statement will bear repetition. To emphasize the qualities of an efficient contractor-dealer let me carry this subject one step further and show the relation of the quantity discount to rate of turnover. Suppose a situation wherein the jobber quotes the following prices on a certain product:

5 boxes of X	.....	$4.45 per box
10 boxes " "	.....	4.40 " "
25 boxes " "	.....	4.35 " "
50 boxes " "	.....	4.20 " "

Now take the case of a retailer who can handle five boxes a month to good advantage. This order would cost him $22.25. His resale margin (not profit for all his fixed charges must be deducted) on the five boxes would be $2.75. Suppose, further, that his turnover is monthly or twelve times a year, his resale margin on an investment of $22.25 would be 12x$2.75 or $33, equal to a resale margin of 148 per cent.

Let us consider the case of the same dealer when he undertakes to buy in fifty-box lots for the sake of the lower cost per box. He saves twenty-five cents per box and this seems very much worth while, but let us consider further. His investment is $210 and on this investment his resale margin is $40. But his turnover is now one in ten months and therefore his resale margin of $40 on fifty boxes is equal to only 23 per cent. In addition to the actual loss incurred through buying in larger lots the merchant has incurred the risk of market decline, of damage to stock, a greater cost in the form of insurance and interest, and in these several ways is worse off than when he purchased according to his current requirements.

An efficient merchant is never justified in placing an order for an oversupply of any product and he should figure his purchases entirely on the basis of his turnover ability. The contractor-dealer who knows his business and observes this fundamental of merchandising may be said to be efficient with respect to buying.

The Basis for Selling Efficiency

Let us now go into the problem a bit deeper and consider the tests of efficiency with respect to selling. The contractor-dealer who hopes to succeed must have in his own person or in that of some subordinate certain qualities, to wit: (a) knowledge, (b) experience, (c) right attitude toward the work, and (d) personality. The **knowledge** must include knowledge of the goods with respect to their qualities and uses, and ability to bring out their selling points. Knowledge must also include knowledge of people, their

traits and ways of thinking, their ways of using goods, their methods of arriving at an appreciation of values, their standard of living and their habits and customs in consumption. Likewise knowledge must include a knowledge of the store, its plans and policies and its stock. Thus it follows that the first qualification is something definite.

Attitude toward the work is highly important. There is a definite relationship in the mind of the consumer between the goods offered and the salesman who offers them. Components of attitude are a liking for the work, a liking for people and all sorts of humankind, optimism toward life and its problems, enthusiasm and ambition. A good salesman sells himself with his goods and thus **personality** becomes important as a factor in salesmanship. Personal habits, individual peculiarities, appearance and manner all enter into personality. **Experience** is the great storehouse of accumulated knowledge upon which one may draw in order to meet new and unexpected problems. Certainly experience is not the least significant of the tests.

Perhaps this analysis of efficiency may be criticized as academic. That, however, does not condemn it. But for those who are inclined to this view let me present the matter in another light. The qualities that make a merchant may be set forth according to the essential components, but the possession of certain fundamental qualities is undeniable. The most essential thing is that the merchant shall have the point of view of the merchant, the instinctive qualities of a merchant, that he shall be one who thinks in terms of merchandise values and service, that he shall be one who sees his place as a merchant in the economic scheme of things and takes pride in the dignity of service efficiently performed.

Applying the Test

Having set forth with some pains the components of the two great fundamentals, buymanship and salesmanship, it must now be clear what is meant by efficiency as applied to retail outlet for goods, whether electrical or other goods. When the question is asked, Does the contractor-dealer function?, and it is answered that he does if he provides an efficient outlet for electrical goods, it is clear what is meant by efficient. Thus we may say that when these tests are applied, few contractor-dealers really function.

Does the ordinary critic of the contractor-dealer have these standards in mind when he condemns the contractor-dealer? Not exactly these, but standards none the less by which he measures the actual performance of the contractor-dealer. Should he have these standards in mind? Yes, as an ultimate aim. When the retailing of electrical goods is in the hands of men who grasp these primary essentials now so well known in the more highly developed fields of the mercantile world, there will be no complaint on the part of manufacturers and jobbers about the failure of the contractor-dealer to function. I will go one step further and say that until the day comes when conditions are such that men who recognize these a, b, c's of merchandising are in charge of the retail outlets for goods, the problem of the contractor-dealer as an outlet will not be solved.

To attain the desirable situation when real merchants are in charge of contractor-dealer establishments there must be set in motion two sets of forces. First, the process of elimination that is now daily going on must be accentuated and hastened so that the unfit will be thrown out. Second, there must be some constructive educational work done for and by contractor-dealers. Here I have in mind such work as has been done by the Seattle Electric Club, the California Electrical Cooperative Campaign and one or two central stations which will be referred to hereafter.

The Touchy Question of Margins

There are those who say that it is all a question of margins. The retail margins are too narrow, profits cannot be realized and the right type of man is not attracted to the business. It seems to me that this approach to the question is just the reverse of what it ought to be. Are the margins to be so adjusted that even a lineman can merchandise with success? If so, then the costs of distribution of things electrical will rise rather than fall and the problems of the entire industry will be aggravated rather than diminished. Margins cannot be adjusted to the average type of man that engages in contracting and dealing today.

On the other hand, the right approach to this problem seems to me to be that of first ascertaining what a real merchant can do with existing margins. If a real merchant can make profits out of existing margins then these margins are right. The thing to do is not to expand the margins but to pull up the standards of the men who engage in the contracting-dealing business.

This is the right approach to the question and the only one that will effect a permanent solution of the contractor-dealer problem. When men of the right mental calibre and equipment are in charge of the retailing of electrical goods the contractor-dealer problem will melt away. There is nothing inherently wrong with the contractor-dealer outlet as a method of distribution. It is not a case of mechanism, but a case of men back of the mechanism.

The Present Situation

The discussion of the question as to whether or not the contractor-dealer functions may now be summarized. (a) It cannot be said that contractor-dealers function in the sense that they now provide efficient outlets for electrical appliances unless it be in inland and country towns. (b) That contractor-dealers do not so function is not an indictment of the system of distribution that includes them, but (c) it is rather a commentary upon those conditions that have drawn men of poor calibre and inadequate equipment into the business. (d) It therefore follows that the system of distribution should not be abandoned if educational and other constructive methods will draw into the contractor-dealer business the type of man who is competent to meet the requirements of his calling.

The Relation of Your Credit to Your Capital Investment

By Charles Goodwin*
Assistant Credit Manager, Pacific States Electric Company

THE natural impulse of the retailer to do as much business as he can is checked by the limit imposed by the wholesaler on his credit. The point where it ceases to be good business to expand your liabilities without first increasing your capital is here explained by the jobber's credit specialist.

IT cannot be denied that the success of a wholesale business depends very largely upon the success of those individuals or companies through which its merchandise is distributed. It therefore follows that the policies and practices which govern the conduct of the jobber's credit department, must be those which have proved to be to the best interests of the jobber's customers.

We have many times heard the self-interest story ably presented by one of our leading central station officials who brings home to us very conclusively that the dominating motive of our actions in business, and outside of business as well, is self-interest. Granting that the policy of a company is naturally the one which points toward the greatest reward or profit, would it not follow that in conforming to a credit policy which might at times seem pretty strict, the jobber is mindful of the fact that to be successful this policy must prove to be for the ultimate good of its customers?

The Responsibility of the Jobber

By a too liberal credit policy a jobber can do an injury to his trade. When an excessive line of credit is granted and accounts are extended beyond the ordinary trade terms, the jobber is encouraging the contractor-dealer to operate beyond his capital and rare is the case where such a practice leads to profit for either the contractor-dealer or jobber. The question arises, How are we to know when we are operating beyond our capital? How much business can we undertake without unduly straining our capital and introducing the dangers which attend such a practice? The credit man can judge that this condition exists in most cases where purchases are increasing and payments on the account fail to keep pace with them, and if after an investigation, he becomes convinced that the customer is undertaking more business than his capital warrants, can endeavor to discourage the practice by counseling with the customer. To take no steps to assist in remedying the situation when signs appear indicating that a contractor-dealer is operating beyond his capital, is very definitely lending encouragement to the practice.

The modern credit man recognizes as an important part of his responsibilities, the close counseling with customers in all matters relating to their financial problems and welcomes the confidence when he is called upon. Naturally, however, we hardly think of calling in a doctor when all is well and healthy—and in the same way the credit man, sometimes termed a "business doctor," is not called upon nor does he usually have the opportunity to discuss the financial side of the customer's business, unless things are not going just right. It seems, therefore, that there should be a measuring-stick for the contractor-dealer to use so that he may determine for himself how much business he can undertake without extending his operations beyond his capital. In large organizations where the most modern accounting methods are employed and special departments can give study and analysis to relations and ratios, little or no difficulty arises in determining this question. It will be found that as a rule the successful corporations have enlarged their capital when necessary to permit them to share in a rapidly increasing volume of business or, where capital increases cannot be brought about, usually limit their business to the amount of capital which they can employ.

I have attempted to hit upon a simple guide or measuring-stick that could be used by the contractor-dealer who wishes to know that he is not encouraging an inflated condition in extending his business and have concluded that in most cases the answer can be arrived at by a study of the relation of liquid assets to liabilities. Liquid assets, often referred to as quick or current assets, are those which in the normal conduct of a business will find their way into the cash account and in a contractor-dealer business would generally be:

> Cash, Accounts, Notes and Trade Acceptances Receivable, Material and Labor in progress and Merchandise.

The liabilities are the total amount which a business is owing, including borrowed money, merchandise and supplies purchased.

The banker and credit man in analyzing a financial statement will usually consider the condition sound if the relation of liquid assets to liabilities is two to one or better. Manifestly, in passing judgment upon the statement, they must know that the assets reflect the true values. The two to one ratio might appear, but the standing could not be considered a healthy one, if the Accounts Receivable included long past due accounts, many of which were doubtful of collection, or if the Merchandise was largely slow-moving and obsolete or was shown in the statement at higher than current market costs.

*Paper presented before "Check" Seal organization meetings.

If the assets in a statement were on this basis, it would probably be found that a large part of the liabilities were past due.

How It Works in Practice

To illustrate these points, I have set down on charts, four financial statements. While the figures in these statements are in round numbers to simplify the illustrations, we shall assume that they are actual figures taken from the books of four contractor-dealers and that the assets show the correct values, deductions having been made for doubtful accounts and depreciation taken on merchandise.

In the first statement, it will be seen that the business has invested $1,000 in fixed assets, such as

FINANCIAL STATEMENT (1)

ASSETS			LIABILITIES	
Fixed Assets		$1,000.00	Payables (Mdse.)	$1,500.00
Current Assets			Owing to Bank	500.00
Cash	$ 200.00			$2,000.00
Receivables	2,000.00			
Merchandise	3,000.00			
Work in Progress	800.00	6,000.00	Net Worth	5,000.00
		$7,000.00		$7,000.00

Furniture and Fixtures, Tools and Automobiles; that the current or liquid assets, consisting of Cash, Accounts Receivable, Merchandise and Jobs in Progress total $6,000; and that the business is owing for merchandise purchased and borrowed money, $2,000. The current assets are three times as great as the liabilities and a ratio exists then of three to one.

This business is in good financial condition as it could within a short period of time by collecting its Accounts Receivable, pay the liabilities in full. A going business is rarely called upon to pay its full liabilities as there are always a part, representing those incurred for current purchases, which may not be due. The point is, however, that the statement, to be considered a healthy one, should show that the business is not inflated but can liquidate its liabilities as they mature. To perceive this, we must see that the cash plus the accounts which can be collected within a reasonable period, will provide sufficient to cover the outstanding accounts payable.

FINANCIAL STATEMENT (2)

ASSETS			LIABILITIES	
Fixed Assets		$1,000.00	Payables (Mdse.)	$3,000.00
Current Assets			Owing to Bank	1,500.00
Cash	$ 200.00			$4,500.00
Receivables	3,000.00			
Merchandise	4,000.00			
Work in Progress	1,800.00	9,000.00	Net Worth	5,500.00
		$10,000.00		$10,000.00

Let us now look over statement No. 2. The fixed assets are in this case also $1,000 and the current assets total $9,000. This business shows a net worth of $5,500, which is a larger net worth than shown in the first statement, and the owner may feel that he is proportionately better off than No. 1. In statement No. 2, however, the liabilities are $4,500 or just one-half the amount of the current assets, bearing out a relation of two to one. In No. 1, this relation is three to one and it must, therefore, be considered that the first business is in sounder financial condition than the second, even though the net worth in case No. 2 is the larger.

With the relation of two to one in assets to liabilities, the business in case No. 2 could, through the completion of its jobs and the collection of accounts resulting from these jobs, as well as its present accounts receivable, realize sufficient to pay the liabilities—but it will be seen that it is a slower process in this case as the jobs must be completed and collected in order to accomplish it fully.

FINANCIAL STATEMENT (3)

ASSETS			LIABILITIES	
Fixed Assets		$ 2000.00	Payables (Mdse.)	$ 8,500.00
Current Assets			Owing to Bank	3,500.00
Cash	$ 500.00			$12,000.00
Receivables	6,000.00			
Merchandise	9,000.00			
Work in Progress	2,500.00	18,000.00	Net Worth	8,000.00
		$20,000.00		$20,000.00

Statement No. 3 illustrates a business operating beyond its capital. This business you will note shows a net worth of $8,000 which is substantially larger than the net worth of the other two businesses. The fixed assets are $2,000 and the current assets, $18,000. Looking at the liability side, we see that this business is owing suppliers $8,500 and has a loan from the bank of $3,500, or total accounts payable of $12,000. With current assets of $18,000 there is a relation of current assets to liabilities of 1½ to 1. If this business were to complete and collect for all jobs in progress and collect all outstanding accounts, it would have insufficient cash to cover its liabilities. Consequently a part of its merchandise would have to be started through the channels which would produce cash, which would then probably first be put into jobs; these, when completed, would turn into accounts receivable and would possibly thirty days later find their way into the cash account.

This business is operating to a large extent on credit instead of capital. Should the bank, due to changes in the money market or for other reasons, desire the note which they hold to be paid instead of renewed at the close of the 60 or 90-day period for which it was given, or should one or more of the larger merchandise creditors seek a reduction in their accounts, this business would have some difficulty in meeting these payments and in still retaining sufficient liquid capital to carry on its current operations.

Passing to the fourth and last statement, we see a serious condition in a business which shows a net worth of $10,000, a larger net worth than in any of the previous examples. While an extreme case, this is not an exaggerated one, for as a matter of fact, all four statements shown in the chart are, with slight revisions, copies of financial statements taken from credit files.

In statement No. 4, the Cash, Accounts Receivable, Merchandise and Jobs in Progress total $50,000,

which is also the total of the liabilities. The relation of current assets to liabilities is, therefore, one to one and it is due to this relation that the business is in a dangerous position. This company for its own salvation will be obliged substantially to curtail its operations and devote its energies to turning into cash the Accounts Receivable, Merchandise and Jobs

FINANCIAL STATEMENT (4)

ASSETS			LIABILITIES	
Fixed Assets		$10,000.00	Payables (Mdse.)	$38,500.00
Current Assets			Owing to Bank	11,500.00
Cash	$ 50.00			$50,000.00
Receivables	24,950.00			
Merchandise	15,000.00			
Work in Progress	10,000.00	50,000.00	Net Worth	10,000.00
		$60,000.00		$60,000.00

in Progress to meet the many large and small pressing obligations which in a case of this kind will be found to constitute the liabilities. In going through this process, the business will risk the loss of prestige and patronage as it will be unable to serve the public on the same scale as in its larger operations—nevertheless, it surely must "pull in its horns." Close cooperation between the owner and all creditors might make it possible to save a business in this position from failure, but it would probably take a long time and would certainly require tremendous effort and application.

The Dangers of Inflation

In addition to the inflated financial condition which results from operating beyond the capital, it is generally true that the percentage of operating income to sales diminishes as the volume grows. This is often to be attributed to the tendency to take the larger jobs at lower rates of gross profit, and also in many instances is caused by the business being operated not alone beyond its capital, but beyond the ability of the organization. With his capital strained, the business man feels reluctant to increase his overhead by enlarging his organization. As a result, inefficiencies creep in, sometimes proving to be very expensive. Investigations cannot be made as to the credit standing on new accounts. Collections cannot be followed with the regularity which they require, job sheets cannot be priced and billed promptly, buying cannot be carefully supervised; losses result in accounts and in merchandise depreciation, all adding to the expense of doing business and placing a greater strain on the capital. If a business grows step by step and increased volume is sought concurrently with capital increases, through profit, an effective and efficient organization is built which can take care of the business—but to reach out for large business on a small capital will usually place such a strain on the capital, as well as the organization, that profits fail to accrue in proportion.

It might, therefore, be said that to gage whether a business is operating beyond its capital, a monthly comparison of the current assets and liabilities should be made. In the usual case the business can be said to be in a sound financial position if in this comparison the relation of better than two to one is borne out.

Keeping the Men Amused in Mountain Construction Camps

ONE of the things learned from army experience was the value of keeping up the morale where men were banded together. Mountain construction camps offer a problem in many respects similar to that of an army camp. A large number of men are banded together, in large part without the leaven of feminine and home interests and without the resources of any nearby community for entertainment. It has been found that the factor of labor turnover

Weekly prize fights provide entertainment and make for the growth of community spirit in the Big Creek camps of the Southern California Edison Company.

is greatly reduced if the men can be interested outside of their work, kept amused of an evening and in general taught to look to their fellows and themselves for entertainment.

Motion picture shows and radio entertainments are good in their way and have been encouraged by the power companies with mountain construction work under way. The Big Creek camps of the Southern California Edison Company, however, have solved their own problem to a large extent by instituting an intercamp series of prize fights. These are weekly events, taking place alternately at the different camps, and arouse great enthusiasm. Each group, of course, develops its local favorites and the rivalry becomes most keen. A volunteer orchestra organized among the men themselves adds variety to the entertainment.

The advantage of this type of evening program over one furnished by outside talent is obvious. The men have a part in planning and in carrying out the event and a local pride in the result, not far outclassed by the small town feeling for the home ball team. Community spirit is fostered, which manifests itself in general good feeling among the men.

These entertainments have been well attended, delegations being sent over from each camp as the event in turn takes place on the other camp's grounds —and trees and hillslopes as well as benches have to be pressed into service on occasion as bleachers.

Training the Future Employee Through Cooperative Education

By H. H. Bliss
Director of Vocational Education, Riverside Junior College, Riverside, California

THE cooperative movement in Western education promises a supply of engineering graduates already trained in the industrial and utility fields, with their apprenticeship in practical work already behind them. Mr. Bliss tells of the successful carrying out of such an experiment in the Riverside Junior College.

BUSINESS must have its source of supply for raw materials of labor. Such organizations as employ skilled artisans and technical men must have a source of material which is, after all, not too raw. Shall the initial bridging of the gap between the class room and the office or the power house, be left to the haphazard system of cut and discard now in force, or shall we revise our system of preparation so that there is a closer liaison between education and business, between the student and the power company or manufacturing plant that is to employ him?

Two years ago Riverside Junior College inaugurated a system of engineering education in cooperation with the major industrial and engineering establishments of Riverside and neighboring cities. The first year's operation showed the feasibility of the plan, and its scope was increased to include commercial work and to admit women as well as men students to the enjoyment of its benefits. The enrollment more than doubled in the second year, and the number of firms willing to cooperate with the college in training the future leaders of industry and business increased to include most of the larger organizations in Riverside and several other cities.

The cooperative plan has been adopted by several of the more progressive Eastern colleges, notably the University of Cincinnati, Antioch College, and the Massachusetts Institute of Technology, but no public institution in the West except Riverside Junior College has yet attempted to give its students the advantages of this type of course.

The Plan in the Junior College

In brief, the plan includes alternate monthly periods of study and employment, co-ordinated so that the work serves practically as the laboratory part of a unified course of training. Two students hold a single position, carrying on the work in alternation, so that the employer receives continuous service. At the college special courses are arranged for cooperative students, taking up the instruction, when they return, at the point where they stopped a month before. The students keep in touch with the institution while away at work, mailing in reports of home study and attending evening co-ordination meetings. Furthermore, during the period at college, they maintain contact with their jobs through occasional conferences with their alternates.

In California alone there are twenty-seven Junior Colleges, offering two years of collegiate instruction. The severe overcrowding of the older colleges and universities of the state makes it imperative that an increasing proportion of the burden of higher education be borne by these junior institutions, which are in some quarters looked upon as feeders or preparatory schools for the universities. Such was not the idea of their originator, Dr. A. F. Lange, and such is not their actual function as shown in their development to date. By far the greatest part of junior college students never go to any other institution but complete their formal education within two years of leaving high school.

With this in mind it is evident that the principal work of the Junior College is, in addition to imparting culture, preparing the young men and women of the communities surrounding the institutions to participate effectively in the adult activities of those communities. The great field of the Junior College is primarily vocational, in no narrow or limited sense, but including guidance in the selection of life work and definite training toward that goal. As it is true that no one can be a good citizen who lives as a parasite on society, it is also true that to be an efficient producer and a leader in industry or business one must have a broad vision of humanity and civilization as well as of the details of one's specific vocation. Hence a truly vocational course is not only the best preparation for effective citizenship, but it also offers the foundation for real culture.

Advantages for the Student

Junior Colleges have peculiar opportunities to develop this type of course, for they are unhampered by the weight of tradition and the unwieldiness of bulk which handicap progress in older and larger schools. Located in all parts of the state, close to the homes and interests of their supporters, they can adapt their policy to the needs of the community and can secure willing cooperation from business and industry. Administrators in these fields know, even better than educators, the great and growing demand for leaders and executives with both adequate experience and broad training, and they are glad to meet the schools half way in such projects.

For the earnest and self-reliant youth, the type most in demand in progressive industries, the cooperative course offers splendid opportunities. One valuable feature is the training it gives in the

technique of production. Years of experience, co-ordinated with college instruction, give a thoroughness of understanding of processes otherwise difficult to obtain. A more important advantage lies in the opportunity to study human relationships and to become thoroughly acquainted with phases of personnel management. In modern industry and commerce a great deal depends upon "human engineering" and the varied experiences of a cooperative student give him a most valuable insight into this problem.

Many college students find it difficult or impossible to make an intelligent choice of life work without specific experience in some line of productive activity. The cooperative plan gives this experience and enables a man to learn definitely whether or not he is naturally qualified for a line of endeavor which appeals to him. He is saved the aimless casting about at the end of his college career which is so wasteful and distressing to many college graduates. Along with finding himself in a vocational way, the student develops confidence and initiative with his experience in production. Command of himself and ability to work with others for a common end are large features in his later success.

While it is to be emphasized that the great value of the cooperative course lies in the practical experience it gives and the invaluable guidance it provides in the selection of one's vocation, still an important feature is the income derived from the cooperative employment. The amount varies with the employer, the student and the type of work selected. In general, the income is nearly or quite enough to pay all college and living expenses, and a few students succeed in saving something toward paying the cost of higher education later. A young man or woman with grit enough to feel the urge toward independence, whose pride rebels against continuing to be a burden on the family income, welcomes this opportunity for self-support. The effort required to work one's way through college on any other basis is becoming more difficult year by year as the cost of living increases, and in many cases it results in an undue strain upon the student and the accumulation of debts which must be paid off while he is struggling to make a start in his chosen profession. Under the cooperative plan all students are given equal opportunity for an education, since the financial handicap is negligible.

Course of Study

Special courses in English, Economics, Science, Engineering, Stenography, Accounting, etc., are administered at the college for cooperative students, while their work in business and industry constitutes an allied laboratory course. The two branches of instruction are joined through the activities of the "co-ordinators," men who keep in touch with students on the job and with the cooperating employers, and who conduct classes in "Co-ordination" in which all phases of the work are fully discussed and analyzed. The co-ordinators are also responsible for assigning students jobs which will afford the training necessary for development; should occasion warrant, they transfer them from one department or employer to another.

Since cooperative students spend only half time at the College, it takes them usually two years to cover the same amount of academic instruction that other students obtain in a year. Some exceptionally rapid workers are able to cover the entire course in three years, but on account of the high value of the supervised practical experience, students are advised to devote four years to the cooperative course. At the end of that time some will elect to enter a higher institution, such as the State University, for two years of specialized instruction, but the majority will prefer to enter industry or business directly.

Following is the outlined curriculum for engineering students. The number of credits for each course is calculated on the basis of one unit for one lecture, recitation, or laboratory period each week for alternate months throughout the year, or two periods a week for half a year. Credit for cooperative employment, 12 units a year, is sufficient to make a total of 124 credit hours for the four years, if the student carries an average of 19 units of academic work. Most of the credits are transferable to other institutions, but some of them, such as those for co-ordination and for cooperative employment, are not accepted in institutions which do not give cooperative education. It is possible to vary from the schedule outlined below, particularly where a course, such as Materials, for instance, is given only to one section of cooperative students during one year; those in the other section may take such subjects later or earlier as may be convenient. Where parentheses appear, they indicate a choice between subjects; in general, students will not take more than one of those so marked.

COURSE OF STUDY — COOPERATIVE COURSE

Year:	I	II	III	IV
Accounting	....	2	....	....
Business Organization	....	....	....	1
Chemistry	....	....	(4)	(4)
Citizenship	2	....	....	....
Commercial Law	....	....	....	1
Cooperative Employment	12	12	12	12
Co-ordination	2	2	2	2
Drawing	1	1	2	1
Economics	....	....	3	3
Electricity	....	....	(4)	(4)
Engineering Calculation	3	3	3	3
English	2	2	1	1
Materials of Construction	....	....	3	3
Physical Education	1	1	1	1
Physics	4	4	(4)	(4)
Surveying	4	4	....	....
	31	31	31	32

Increasing Support for Future

From the experience of a year and a half in California it appears that the cooperative plan for education in business and engineering is succeeding, as it has already succeeded in a dozen of the leading institutions of the eastern United States. The enthusiasm of the students at Riverside is very gratifying, and the loyal support and increasing cooperation of employers in several cities indicate a continued growth.

Junior Colleges and other small institutions of collegiate rank will probably discover in the cooperative plan a widening field of usefulness and a means of increasing the loyalty of their constituent communities.

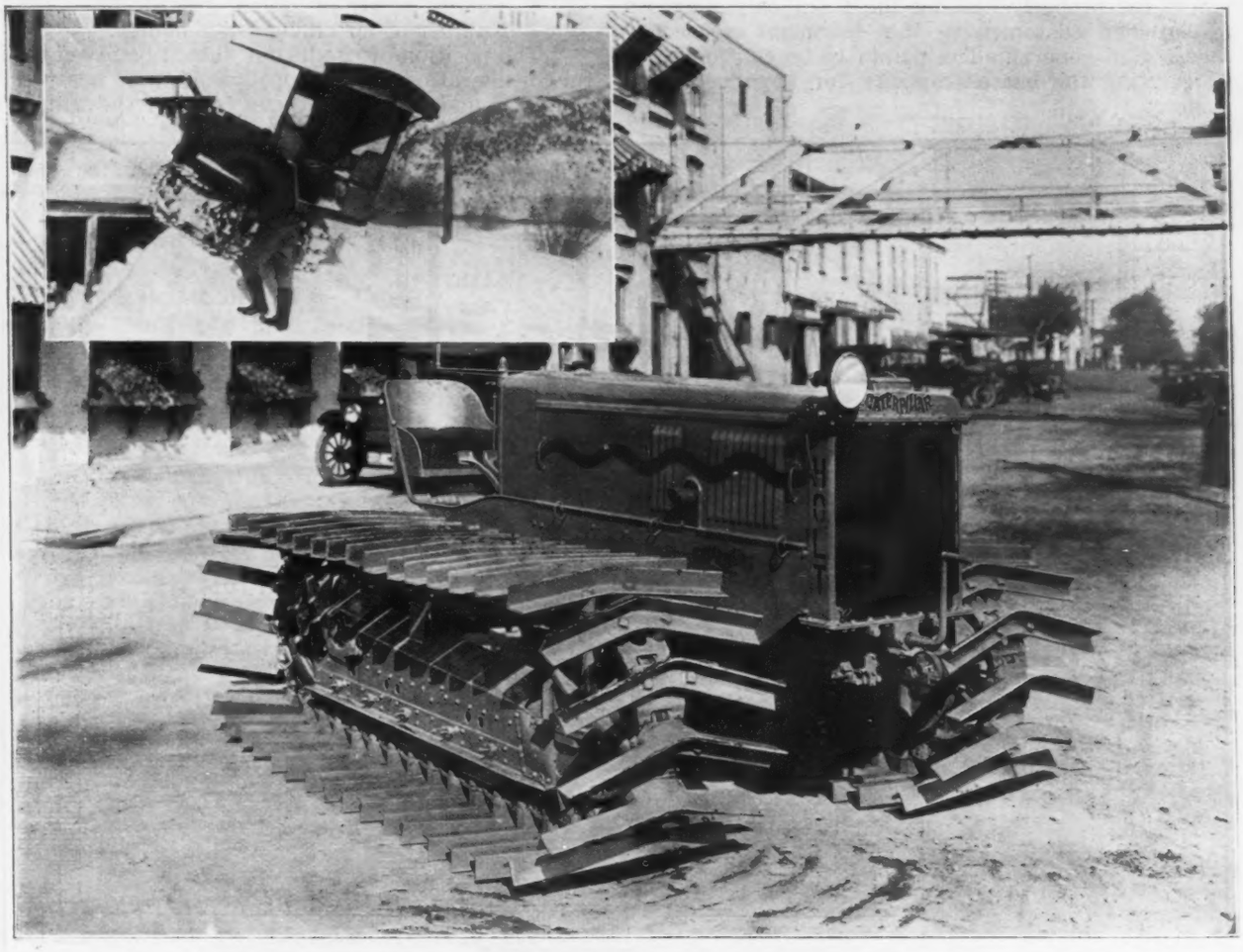
Tractor Aids in Mountain Repair Work During Winter Snows

WINTER snows in mountain divisions often effectively interrupt the patrol and construction work of the power company forces. Horses cannot be used and in cases where a heavy storm has brought down a considerable section of line, it becomes very difficult to drag in the required material for the repair job.

In view of the difficulties and interruptions experienced in the Sierra districts during the winter months, the Southern Sierras Power Company has installed two small caterpillar tractors for use in hauling and patrolling over the snow. These are of the ordinary type used on the farm, with plate treads in place of the angle iron tread. These machines navigate equally well under all weather conditions and with any type of surface underneath; they climb snow banks and can be used to haul a train of wagons bearing repair material or a gang of men.

The tractor is used to replace snowshoe or ski patrols. It is when the power line goes down, however, as in the case of the high wind storm during the past winter, that it proves invaluable. In such a case, some heavy construction is required, which ordinarily means material hauled to the spot. In past years, some of the horses in that section have been trained to the use of snowshoes, but this is uncertain and cannot be counted upon as a regular method of transportation, the major portion falling upon portage by men on snowshoes. The little tractor solves this problem neatly and ensures that the repair will be effected in reasonable time, a feat which was not always accomplished under the old methods, particularly if the necessary material did not happen to be within the immediate vicinity of the break.

The success of the method was well illustrated during the first year of its use, when its employment made possible the prompt resumption of service after a mountain storm which snapped off many of the two-pole wooden structures in the northern division. A second tractor has recently been added for use on the company's property near Mono Lake.



The small tractor, equipped with plate treads, is used by the Southern Sierras Power Company, Riverside, Calif., to haul construction material and repair gangs in its mountain divisions during the period of the deep snows. It can climb the side of a house, as well illustrated by the insert.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

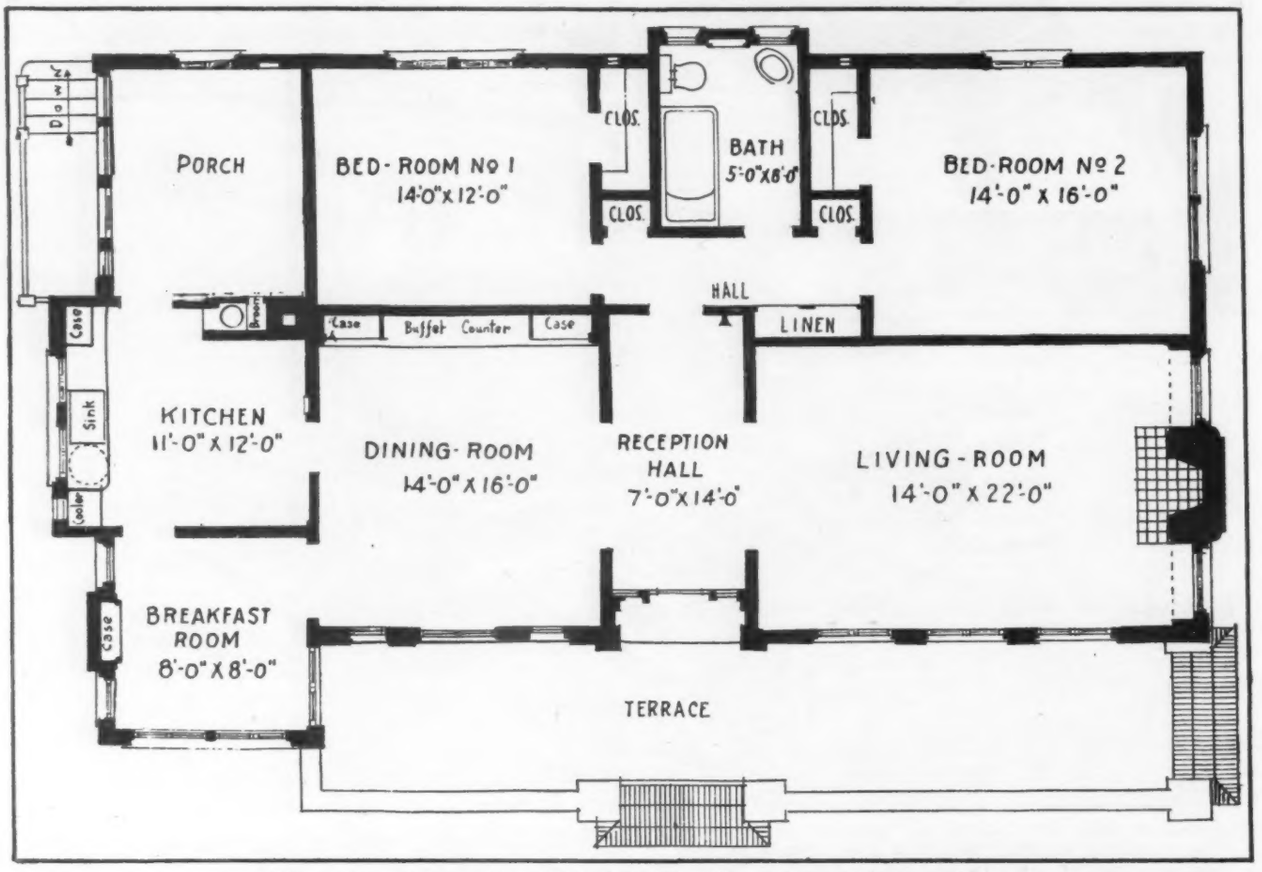
Electrical Construction

By E. Earl Browne

AIR heating requires a consideration of the structural features of the building as well as the climatic conditions, and for these reasons great care should be taken in order to calculate the proper size of heater required for a certain room. This cannot be accomplished by guess or any set rule as to a certain capacity for a certain volume as the capacity necessary can vary from ½ watt per cu. ft. to 3½ watts per cu. ft., according to the size of the room and the radiation losses. A heater that is too small for properly heating the room only makes a dissatisfied customer to the detriment of electric heating in general. The points to be considered in calculating the heater capacity for any room area follow:

1. Area of glass.
2. Area, construction and exposure of outside walls.
3. Area and construction of inside walls and the nature of the adjoining room.
4. Area and construction of floor; also a thorough understanding of the conditions under the floor.
5. Area and construction of ceiling; also whether with floor above or open attic.
6. Volume of air in room.
7. Number of air changes per hour.

The position of the heater should be given careful consideration. The proper position of heaters is usually found to be directly in front of the windows



Floor plan of house for which electric heating equipment is computed.

Nature of Surface	Watts 10°F	20°F	30°F	40°F	50°F	60°F
1—Single glass	3.0	6.0	9.0	12.0	15.0	18.0
2—Double glass	1.7	3.4	5.1	6.8	8.5	10.2
3—Single skylight	3.5	7.0	10.5	14.0	17.5	21.0
4—Double skylight	1.8	3.6	5.4	7.2	9.0	10.8
5—4-in Brick wall	1.9	3.8	5.7	7.6	9.5	11.4
6— 8-in. Brick wall	1.3	2.6	3.9	5.2	6.5	7.8
7—12-in. Brick wall	.9	1.8	2.7	3.6	4.5	5.4
8—24-in. Brick wall	.6	1.2	1.8	2.4	3.0	3.6
9— 4-in. Concrete wall	2.3	4.6	6.9	9.2	11.5	13.8
10— 8-in. Concrete Wall	1.6	3.2	4.8	6.4	8.0	9.6
11—12-in. Concrete wall	1.1	2.2	3.3	4.4	5.5	6.6
12—24-in. Concrete wall	.7	1.4	2.1	2.8	3.5	4.2
13—Outside wall plastered and sided	1.3	2.6	3.9	4.2	6.5	7.8
14—Partitions, lath and plaster both sides	1.0	2.0	3.0	4.0	5.0	6.0
15—1-in. Wood partition	1.2	2.6	3.6	4.8	6.0	7.2
16—Wood floor (double board)	.25	.5	.75	1.0	1.25	1.5
17—Cement flooring	.9	1.8	2.7	3.6	4.5	5.4
18—Wood ceiling	.3	.6	.9	1.2	1.5	1.8
19—Plastered ceiling (floor above)	.75	1.5	2.25	3.0	3.75	4.5
20—Plastered ceiling (no floor above)	1.0	2.0	3.0	4.0	5.0	6.0
21—Air per 100 cu. ft.	5.4	10.8	16.2	21.6	27.0	32.4

Table I—Showing heat lost by radiation expressed in watts per sq. ft. of surface area, computed for various differences in degrees Fahrenheit between exterior and interior temperatures.

so as to move the air from the window and not towards the cold glass which radiates the heat rapidly, as will be seen by referring to Table I.

In applying item No. 21 of this table the number of air changes per hour must be decided upon, after which it is but necessary to multiply the volume of the room in cu. ft. by the number of changes per hour. The number of air changes per hour varies from 1 to 10, depending on the occupancy of the building. For rooms that have sides exposed to winds and for buildings heated intermittently with long intervals of non-heating, 10 to 25 per cent should be added to the heater capacity.

With these facts in mind, we will now calculate the proper installation for a residence, the floor plan of which is given in Fig. 1.

Table II shows the various room sizes under consideration.

TABLE II

Living Room	14 x 22 x 9-ft. ceiling
Reception Hall	7 x 14 x 9-ft. ceiling
Dining Room	14 x 16 x 9-ft. ceiling
Breakfast Room	8 x 8 x 9-ft. ceiling
Kitchen	11 x 12 x 9-ft. ceiling
Bedroom	14 x 12 x 9-ft. ceiling
Bath Room	5 x 8 x 9-ft. ceiling
Bedroom	14 x 16 x 9-ft. ceiling

It is assumed that the temperature difference between inside and outside air is 30 deg. F. and 20 deg. F. between adjoining rooms; outside walls plastered and sided; wood floors; plastered ceilings, no floors above.

One air change per hour in all rooms has been estimated.

LIVING ROOM

Outside walls	(14+22)=36x 9=324—80 sq. ft. glass	=244x3.9	=952
Inside walls	(14+22)=36x 9=324	=324x2.0	=648
Floor	14x22=308	=308x0.75	=231
Ceiling	14x22=308	=308x3.0	=924
Glass	80	= 80x9.0	=720
Air	14x22x9x1x16.2 / 100		=449
		Total Watts	=3,924

RECEPTION HALL

Outside walls	7x 9=63—30 sq. ft. glass	=33x3.9	=129
Inside walls	14+7+14=35x9	=315x2.0	=630
Floor	7x14=98	=98x0.75	= 74
Ceiling	7x14=98	=98x3.0	=294
Glass	30	=30x9.0	=270
Air	7x14x9x1x16.2 / 100		=143
		Total Watts	1,540

DINING ROOM

Outside walls	14x 9=126—45 sq. ft. glass	= 81x3.9	=316
Inside walls	14+16+14=44x9	=396x2.0	=792
Floor	14x16=224	=224x0.75	=168
Ceiling	14x16=224	=224x3.0	=672
Glass	45	= 45x9.0	=405
Air	14x16x9x1x16.2 / 100		=327
		Total Watts	2,680

BREAKFAST ROOM

Outside walls	8+8+4=20x9=180—70 sq. ft. glass	=110x3.9	=429
Inside walls	8+4 =12x9=108	=108x2.0	=216
Floor	8x8 =64	= 64x0.75	= 48
Ceiling	8x8 =64	= 64x3.0	=192
Glass	70	= 70x9.0	=630
Air	8x8x9x1x16.2 / 100		= 94
		Total Watts	1,609

KITCHEN

Outside walls	12+11+2=25x 9=225—30 sq. ft. glass	=195x3.9	=760
Inside walls	12+9 =21x 9=189	=189x2.0	=378
Floor	11x12=132	=132x0.75	= 99
Ceiling	11x12=132	=132x3.0	=396
Glass	30	= 30x9.0	=270
Air	11x12x9x1x16.2 / 100		=192
		Total Watts	2,095

BEDROOM No. 1

Outside walls	14x 9=126—30 sq. ft. glass	= 96x3.9	=375
Inside walls	12+14+12=38x 9=342	=342x2.0	=684
Floor	12x14=168	=168x0.75	=126
Ceiling	12x14=168	=168x3.0	=504
Glass	30	= 30x9.0	=270
Air	12x14x9x1x16.2 / 100		=245
		Total Watts	2,204

BATH ROOM

Outside walls	5x9=45—18 sq. ft. glass	= 27x3.9	=105
Inside walls	5+8+8=21x9	=189x2.0	=378
Floor	5x8=40	= 40x0.75	= 30
Ceiling	5x8=40	= 40x3.0	=120
Glass	18	= 18x9.0	=162
Air	5x8x9x1x16.2 / 100		= 59
		Total Watts	854

BEDROOM No. 2

Outside walls	14+16=30x9=270—40 sq. ft. glass	=230x3.9	=897
Inside walls	14+16=30x9	=270x2.0	=540
Floor	14x16=224	=224x0.75	=168
Ceiling	224	=224x3.0	=672
Glass	40	= 40x9.0	=360
Air	14x16x9x1x16.2 / 100		=327
		Total Watts	2,964

Note that the dining room and one bedroom are of the same size (14x16) but that one requires approximately 10 per cent more wattage than the other, due to the fact that the bedroom has two outside walls. This illustrates the reason for a careful computation of all installations with all details carefully considered.

Fixture Dealer Develops New Type of Display Case

Protection from Dust and Atmosphere Are Combined with Easy Accessibility and Conspicuous Display

Electric fixture dealers have everywhere sought an adequate means of displaying their wares. On account of the nature of the goods they have always proved difficult to handle in such manner as to secure the maximum display value and at the same time to secure the protection that they require. Fixtures left in the open readily accumulate dust and their finish is frequently affected by atmospheric conditions. Particularly is this true where electricity is not used for heating and where, consequently, various fumes are prevalent in the air. Very often this has been such a serious matter that the finish has been entirely destroyed, resulting in considerable expense due to the necessity of refinishing the fixture. On the other hand, fixtures kept in drawers, as has been frequently done, or in blind wall cases, are not readily displayable and sales have been lost because the prospect did not see something that appealed to his taste.

An entirely new type of fixture display case has been originated and patented by a fixture dealer of years of experience in handling this line of merchandise. The display case is so constructed that it may be placed at any convenient location on the floor or may be raised to the level of wall cabinets. It is so arranged that twenty-four separate units may be displayed at one time and each unit is contained in a separate compartment. Cases may be built for a larger number of units where this is desirable. The front of the case is composed of two sliding doors with glass fronts. This not only permits of viewing the contents of the case but also serves to keep dust and moisture from the fixtures. The interior of the case is regularly finished in white enamel but may be finished in any desired color. It may also be covered with wall paper or with fabric to harmonize with special merchandise for which unusual display is desired.

This showcase both displays and protects the merchandise. Each fixture is attached to a panel that may be removed and hung on the rail at top of the case, thereby establishing contact with the lighting service and permitting active display.

Each fixture is individually mounted on a board or panel that slides in two grooves, one at the top of the partition and one at the bottom. The arrangement of these grooves permits of changing the various partitions to nearly any desired size, this variable feature allowing for fixtures of unusual measurement. The panels are wired through the back in such fashion that by connecting the fixture pigtail to the wiring of the panel, the fixture may be connected to the lighting circuit and displayed as it will appear in actual service. To display any fixture, the panel to which it is attached is drawn out of the case. Hooks are provided at the back of each panel so that it may be hung on the rail built at the top of the case. Wires lead through this rail to condulet fittings that are incorporated into the rail and by merely hanging the fixture to be displayed over one of the condulets, contact is established and the fixture may be lighted. The wires from the rail are concealed down the back of the case and connection to the lighting service may be made permanent or a terminal plug may be used to permit of connection at more than one service point. The case may be mounted on casters in order to be easily moved from one point to another.

This case is also adaptable to ceiling fixtures merely by means of a different arrangement of the grooves and panels. Any number of cases may be installed, either in a bank or distributed throughout a store or department. The finish, of course, may be made to harmonize either with the fixtures to be displayed or with the surroundings. In this way an atmosphere may be added to fixture display that is not otherwise obtainable. Fixtures in this case are set off to good advantage in still display and the assortment can, of course, be changed as often as desired.

Motor Rewinding Jobs Sold on a Percentage Business

The field of the motor dealer is one to which not a great deal of attention has veen devoted. The same principles of merchandising which prevail in the sale of washing machines and electric waffle irons are applicable here, of course, but the popular factors of attractive window displays, well arranged store interiors, shining glass and gleaming nickel are not so apparent. In consequence there are really very few men who specialize in the motor field who pay much attention to the finer points of selling. They carry motors, they understand the technical side of the game—and if anybody is in need of service, they stand ready to make an estimate of the cost and to carry out the work if desired.

F. T. Broiles, of the International Electric Company of Los Angeles, believes that there is moré to the selling and the rewinding of motors than this. He believes that these articles can be merchandised just as scientifically as if they were table appliances or floor lamps. With this thought in mind, he has studied the problem of his motor rewinding business and has evolved a system of pricing the jobs which he

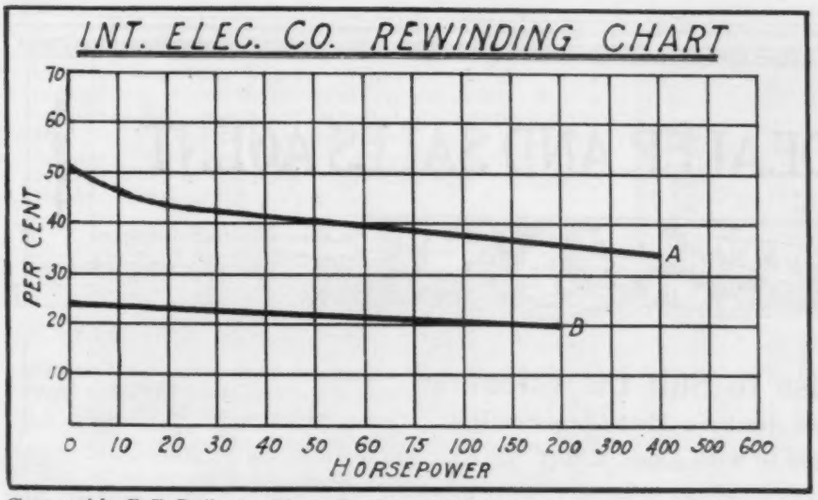


Chart used by F. T. Broiles in giving prices for motor rewinding in terms of costs of new motors. In this chart the A curve represents alternating current costs and the B curve the direct current motor winding charges.

believes offers material for a much better sales argument than the old method of fixing a price on every job submitted.

By taking costs on motor rewinding over several years' time, he has been able to figure out averages for different sizes and types of motors and has made up a chart of motor rewinding charges which can be used to figure the price on any job in a few seconds' time. The price is expressed in percentage of the cost of the motor new. This not only does away with the necessity for having actual dollar-and-cent figures on the chart (which might vary from time to time depending on market prices) but also gives the charge in terms which are really intelligible to the customer.

The man who is faced with the necessity of having his motor rewound must either put this piece of machinery in working condition, or buy a new one. A flat price in dollars and cents quoted to him is apt to sound high—but the same sum expressed to him in terms of the cost of the motor new, lets him see exactly how much he is saving by having the old equipment repaired. Mr. Broiles gives a guarantee with his work which makes the job equivalent in service to a new article.

The chart has been drawn up in neat form and has been blue printed so that a copy of it can be carried in his notebook by every representative of the firm. A reference to this chart impresses the customer as a workmanlike procedure and also shows to him that he is being quoted a standard price.

The actual curve of prices, of course, is a local matter determined by the conditions of the Los Angeles market and Mr. Broiles' own establishment. The principle, however, is one which could be applied universally. Any motor dealer can figure out his own scale of prices and establish a chart for himself which will meet his special requirements.

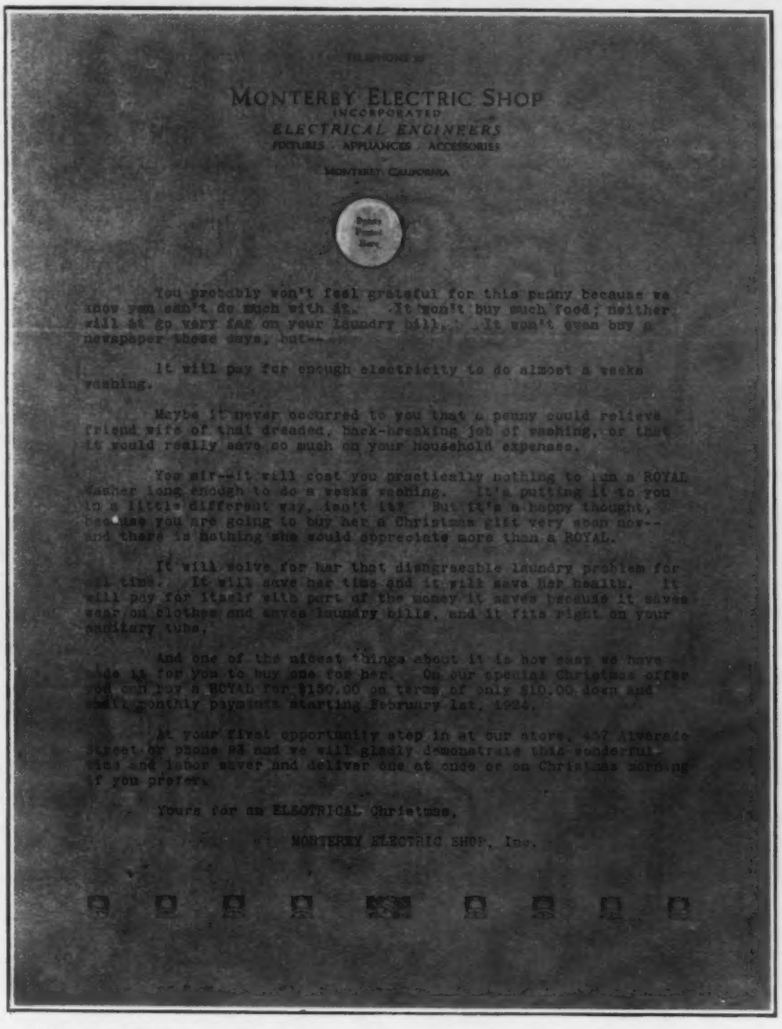
Earl Wilson, electrical dealer of Napa, Calif., was in San Francisco recently to investigate the matter of illumination equipment sales.

Monterey Dealer Makes Penny Bring Appliance Sales

One of the least of the things that come to hand in the course of a day is the ordinary copper penny. Its purchasing power is not very great and there was a time when it was not in favor in the West. However, one electrical dealer has found a use for the penny which magnifies its intrinsic value many times.

Just before Christmas E. Roy Nash, of the Monterey Electric Shop, Monterey, Calif., secured several hundred bright new pennies from the mint and attached one to the top of each letter he sent out to prospects and customers. The letter, which is reproduced herewith, drew attention to the saving in time and labor which could be purchased with the penny provided the prospect were the owner of a Royal washing machine.

This method of approach was so unusual that it commanded attention and brought results that were far in excess of expectations at the time the sales plan was instituted. The returns from this letter with its novel appeal brought the sale of twelve washers from about eight per cent of the letters sent out and proved that mail advertising can be successfully used by electrical contractor-dealers. In addition to the sale of washers the letters served to bring into the store a great number of people who were interested in other electrical devices and Mr. Nash reports that his sales between 5 and 9 p.m. on the day before Christmas amounted to over $500, a large part of which he attributes to this letter.



MONTEREY ELECTRIC SHOP
INCORPORATED
ELECTRICAL ENGINEERS
FIXTURES · APPLIANCES · ACCESSORIES
MONTEREY, CALIFORNIA

You probably won't feel grateful for this penny because we know you can't do much with it. It won't buy much food; neither will it go very far on your laundry bill. It won't even buy a newspaper these days, but—

It will pay for enough electricity to do almost a weeks washing.

Maybe it never occurred to you that a penny could relieve friend wife of that dreaded, back-breaking job of washing, or that it would really save so much on your household expenses.

You sir—it will cost you practically nothing to run a ROYAL Washer long enough to do a weeks washing. It's putting it to you in a little different way, isn't it? But it's a happy thought, because you are going to buy her a Christmas gift very soon now—and there is nothing she would appreciate more than a ROYAL.

It will solve for her that disagreeable laundry problem for all time. It will save her time and it will save her health. It will pay for itself with part of the money it saves because it saves wear on clothes and enves laundry bills, and it fits right on your sanitary tube.

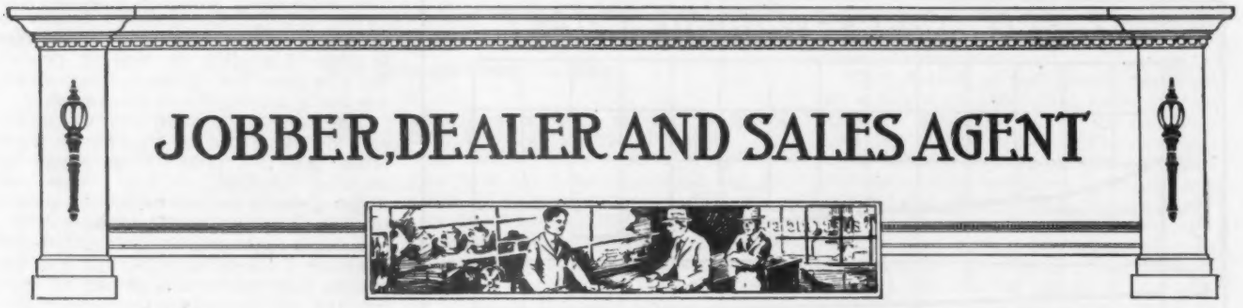
And one of the nicest things about it is how easy we have made it for you to buy one for her. On our special Christmas offer you can buy a ROYAL for $130.00 on terms of only $10.00 down and small monthly payments starting February 1st, 1924.

At your first opportunity step in at our store, call Alverado 8 street or phone 94 and we will gladly demonstrate this wonderful wife and labor saver and deliver one at once or on Christmas morning if you prefer.

Yours for an ELECTRICAL Christmas,

MONTEREY ELECTRIC SHOP, Inc.

This letter, to which was attached a bright new penny, helped to sell twelve washing machines and more than a thousand dollars' worth of electrical appliances. Sales were as high as five hundred dollars in four hours.



Displaying the Merchandise to Suit the Clientele

Denver Contractor-Dealer Arranges Stock So That Wants of His Customers May Be Attended to with Least Effort

The problem as to how the electrical contractor-dealer shall display his stock in the retail establishment has been solved practically by Paul N. Edwards, manager of the Capitol Hill Electric Company of Denver, Colo. The company serves a well-to-do section of Denver and it is necessary that the appearance of the store be kept at a high point in order that the customers may be attracted to the establishment.

Mr. Edwards' principal problem has been to display a large amount of merchandise and at the same time keep the showroom stock in an orderly manner. Shelves and display racks, attached to the walls, have been of material assistance in arranging the stock.

On entering the company's store, the customer first finds a stock of purely staple devices. This stock includes a display of lamps, toasters, percolators, irons, plugs, fuses and other devices that are called for frequently. The passer-by, on seeing the display in the interior of the showroom, is reminded that he is in need of certain electrical equipment and is drawn into the store. When he has once entered the showroom it is the duty of the salesman to take care of his immediate demands and, if possible, to interest the customer in other electrical appliances.

For displaying lamps to customers the conventional display rack, with slight modifications, is used. Lamps are suspended from sockets set in the crosspiece of an inverted U-shaped standard and individual control of the lamps is provided through the use of a series of tumbler switches placed along the legs of the standard. One-half of the lamps are controlled by switches placed on one of the standards, the balance of the switches being located on the other support. Connections for appliances, being displayed to prospects, are installed in the top of the sales counter in direct view of the person interested in the device. In this way the salesman, in demonstrating the appliance, accomplishes two things at once. In the first place, he shows how easily the appliance may be connected to an electric circuit and at the same time places the idea in the prospect's mind that convenience outlets should be installed in his home.

Fixtures, fixture fittings, and heavier appliances are displayed in the rear of the showroom. A showcase there presents a display of a variety of electrical devices and the ceiling and rear wall are used to present a display of ceiling and wall fixtures. One of the features of this exhibit in the rear of the showroom is a display of switch plates which is mounted on the wall. All classes, sizes and finishes of plates are attached to this board which the salesman uses to show prospects the types of plates that are suitable for the particular job. Another device that the company has made to facilitate the displaying of merchandise is a revolving rack on which are exhibited samples of wire, switches, plugs, receptacles and sockets. The customer is permitted to stand in one spot and the salesman rotates the rack, bringing the samples in front of him.

The arrangement of the store has been found to be most satisfactory, presenting as it does a large amount of material in a comparatively small space. In addition the grouping of similar devices saves time for both customer and salesman.

Two interior views of the Capitol Hill Electric Company store are shown above. Note the board for displaying switch and outlet plates in the illustration at the left, also the tumbler switches on the lamp display standards and the convenience outlet set in the counter at the right.

THE illustrations, below, show some of the means that were employed by the range department of the Portland Railway, Light & Power Company in stimulating interest in a recent sales campaign. A group of company trucks, which carried banners, is seen in the upper left and below this is a view of one of the windows used to notify city shoppers of the special offer. Six colored billboards, similar to the one shown at the upper right, were placed at strategic points and the large sign, shown in the lower right hand corner, appeared on the side of the company's building.

Specialized Departments Increase Range Sales

Portland Railway, Light & Power Company Range Department Uses Intensive Sales Effort to Increase Demand for Devices

The "Jack of All Trades" has continued to pass from the general scheme of things and in his place has come the man and company that devote specialized attention to particular items. Specialization has been brought about by the growth of large business concerns and the result has been that the public has been better served than was humanly possible under the old order, where a man was the village postmaster, leading and only merchant, justice of the peace, jovial bartender and at night the leading spirit in the movement for restriction of human liberties.

The increase of business in all directions has made it impossible for an individual to occupy all of the positions which the "village tower of strength" did and as a result each man has his own work cut out for him. He attends to one particular task and relies upon his fellow workers to do the other necessary things.

The idea of specialization has been carried down through the organizations of large concerns to the end that better service is given to the company's customers. Not many years ago one department of the central station company handled all of the business relations of the company with its customers. Then came the commercial department which conducted the contractual relations of the company and at the same time was responsible for any sales of equipment that might be made. As an outgrowth of the commercial department there developed the sales department which conducted sales campaigns among customers and prospective customers. A still further specialization of this work has been the developing of subsidiary departments which have control of the merchandising of specific devices.

One of these, which has been found to be most useful, has been the range department of the Portland Railway, Light & Power Company. To this department, under the sales department, is given the definite work of developing the sales of electric ranges.

This department has been placed in charge of all activity in connection with the developing of range sales throughout the territory served by the company. Arrangement of cooking schools, formation of special sales campaigns and the general efforts to stimulate the demand for electric ranges are detailed to this department.

During the second half of last year this department engaged in two activities that attracted considerable attention to the advantages of cooking electrically. The first of these was a cooking school, conducted under the auspices of the Portland Oregonian and the Edison Electric Appliance Company. Seven thousand women attended the classes that were held in the power company's auditorium.

Following this the company prepared to conduct an intensive six-weeks sales campaign in Portland. The range sales department took entire charge of the campaign and for the occasion was supplied with seven full-time outside salesmen and a specially outfitted range service wagon. The manager of the range department, directly under A. C. McMicken, sales manager of the company, was also in charge of the range display room and the store salesmen.

Extensive advertising was carried on during the campaign. Newspapers, window cards, and six colored signboard posters, 10x20 ft., were located at strategic points. Large colored banners were also attached to all of the company's trucks and a pictorial advertisement was painted upon the side of the Electric Building facing the busiest part of the city.

Results achieved by the range department were most satisfactory. Throughout the time that the campaign was in progress the sales averaged approximately ten ranges a day. The results were due no doubt, in a large measure, to the specialized activities of the range sales department.

The P. A. Geier Company of Cleveland, Ohio, has offered five cash prizes totaling $135 for window displays featuring Royal vacuum cleaners. It is a condition of the competition that the photographs submitted must be based upon display material furnished by the Geier company in connection with its spring housecleaning sales campaign which will culminate in "Royal Week"—April 28—May 3. The judges will be J. M. Rodger, of Electrical Retailing, Clyde P. Steen, of Display World, and Frank B. Rae, Jr., advertising counselor of The P. A. Geier Company, who will award the following prizes: first, $50; second, $35; third, $25; fourth, $15; and fifth, $10.

STORE window displays and store showrooms often provide a reliable basis for estimating the aggressiveness of the man in charge of the particular concern. Carefully arranged window displays and store interiors seldom are found in any but well managed establishments. The illustrations on this page show how four Western electrical concerns have treated windows and interiors. The pictures show: (upper right) window display of A. R. Parsons, Porterville, Calif.; (center right) interior of Boulder, Colo., store of Public Service Company of Colorado; (center left) window of Hurley Machine Company, Seattle, Wash.; (lower right) interior Field Electric Company store at San Bernardino, Calif.

Focus the Prospect's Attention—Then Sell Him

Well Planned Window Displays Arouse Interest in Particular Articles and Lead Customers to the Cash Register

To center the attention of the prospect upon the article that is to be sold is the aim of every well planned piece of advertising copy. The adjustment of type matter, white space and illustrations is all planned with the end in view that the reader's attention must eventually be focused upon only one point in the advertisement. That point is the product about which the advertisement is written.

The aim of the advertisement is to create the desire for possession and it cannot be expected to actually make the sale to the reader. Making the sale is the work of the salesman in the retail establishment into which the prospect is drawn as a result of having read the advertisement which created the desire for possession. To create this desire it is of course first necessary for the man who prepared the advertisement to focus the reader's attention upon the product. If the eye wanders aimlessly about the page and does not come to rest at any one point the productiveness of the advertising copy is lost and the money expended will bring no returns.

If, however, by the arrangement of the advertisement, the writer is able to attract the reader's attention to the product immediately, half of the function of the copy has been completed. After the eye has been attracted to the product the arrangement is designed to lead the reader to the copy that is written around the article and if this is properly prepared the desire of ownership will be imparted to the reader and the aim of the advertisement will be achieved.

In the dressing of the window display, the skilled decorator follows much the same practice that the advertising copy writer does. The reason for this is perfectly plain as the aim of the show window and the advertisement is the same—to create the desire for ownership in the mind of the prospect. The work of the window decorator is sometimes more difficult than that of the copy writer because it is often necessary to display more than one article in the same show window. In cases such as this, each article featured in the window must be separated from the rest and the effort made to make each product a unit display.

When the decorator has only one particular device to present in any display the problem is considerably simplified. To focus the window shopper's attention upon only one article in a display window is a comparatively easy thing. To hold the attention upon this article then becomes the problem.

Holding the attention on one thing in the foreground requires that the background and other diverting objects be of subdued character and must be so arranged that if the eye wanders it will be led back to the desired location. The article being featured must be made to predominate in the display.

An example of how attention can be focused upon one point, by the judicious arrangement of everything included in the display, is shown in the accompanying illustration of a window display of the Poole Electric Company, Seattle, Wash. Herbert C. Poole, manager of the concern which is a wholesale and retail manufacturers' representative, desired to feature the Eureka vacuum cleaner in the display and decided to place the device in the center of the window and focus the attention upon it in that way.

A circular rug of dark colored plush was used as a base for the cleaner, thus setting it off from the rest of the display. The brightly polished nozzle of the cleaner resting upon this dark background made a marked contrast and as a further means of focusing the attention upon the cleaner, small white arrows were pointed at various parts of the device. In addition to the fact that these arrows attracted the prospect's eye immediately upon seeing the window, they performed the function of pulling his attention back to the central display if there was a tendency for him to let his eyes wander to other parts of the window. The arrows were also used to carry a sales message to the prospect, each arrow carrying a small amount of copy that told of the particular advantages of the cleaner.

The background of the display was also in keeping with the general scheme. Dark colored plush drapes were placed on either side of the fireplace that was built in the window and served to set this off to good advantage. As the fireplace was directly behind the central cleaner it also tended to center the attention where it was desired.

The sales message was also presented to the prospect through two placards hung on the pedestals supporting the fireplace mantel. One of these placards drew the prospect's attention to the fact that a small down payment was all that was necessary in the purchase of the cleaner and that the balance could be paid in small installments. The second placard informed the reader that a ten days' free trial period could be taken advantage of without involving any obligation upon the home owner. Two double-page advertisements from a national publication were also used in the window display. In this way the window was tied in with the national campaign and made more effective from a sales point of view.

The window display of the Poole Electric Company, Seattle, Wash., focused the prospect's attention on the center vacuum cleaner.

Showing the Home to One Out of Eight Citizens

First Electric Home Displayed in San Jose Attracts Attention of Nearly Five Thousand Residents of City

Partially because the people of San Jose, Calif., were interested in the electrification of homes and partially because a large amount of publicity was used to announce the first electric home ever displayed there, 4,910 persons visited the home and took advantage of the opportunity to see what electricity can do to make life more pleasant.

Before any preparations were made for presenting an electric home in San Jose, the California Electrical Cooperative Campaign, the sponsor of the exhibit, made a careful survey of the city in order to determine whether or not the people of San Jose were actually interested in the electrification of homes. By consulting electrical dealers in the city it was determined that the people of the community were interested and that the proper time to present the home had arrived. The contractor-dealers there felt that the sale of electrical appliances would be stimulated and that there would be increased demands for house wiring if some concrete method of displaying the advantages of the electrified home could be presented to the public.

When once it was decided that the time was right for the presenting of an electric home in San Jose, plans were immediately prepared for the erecting, furnishing and exhibiting of a model house. Negotiations were completed whereby a house being erected by the Tainter Realty Company was to be used as the electric home. A furniture company agreed to supply the draperies and interior furnishings and a music store agreed to furnish electric musical instruments. The University Electric Company was given the job of wiring the house and installing the fixtures and all of the electrical dealers of San Jose cooperated in fitting the entire house with a large list of electrical appliances.

The home was built in Westonia Park, a new residential subdivision of the city in which most of the homes are of the California bungalow type. The electric home was a five-room bungalow painted white and surmounted by a green shingle roof. Throughout the house the effort was made to make it of an unpretentious character, the idea being to show that a moderate priced home could be electrified as well as one that could be afforded only by persons of means.

Within the house a full complement of electrical labor-saving and comfort-producing equipment was installed. From devices designed to be operated from ordinary 110-volt convenience outlets to a four-burner electric range, the electrical equipment was as complete as could be installed in a home of that size. All the rooms were heated electrically, special 220-volt circuits with power outlets being supplied so that the heaters could be plugged-in with no inconvenience. Special care was taken with the wiring specifications for the home so that there would be an adequate number of all classes of outlets and so that proper illumination would be provided. In doing this, the standard specifications of the Cooperative Campaign were closely followed.

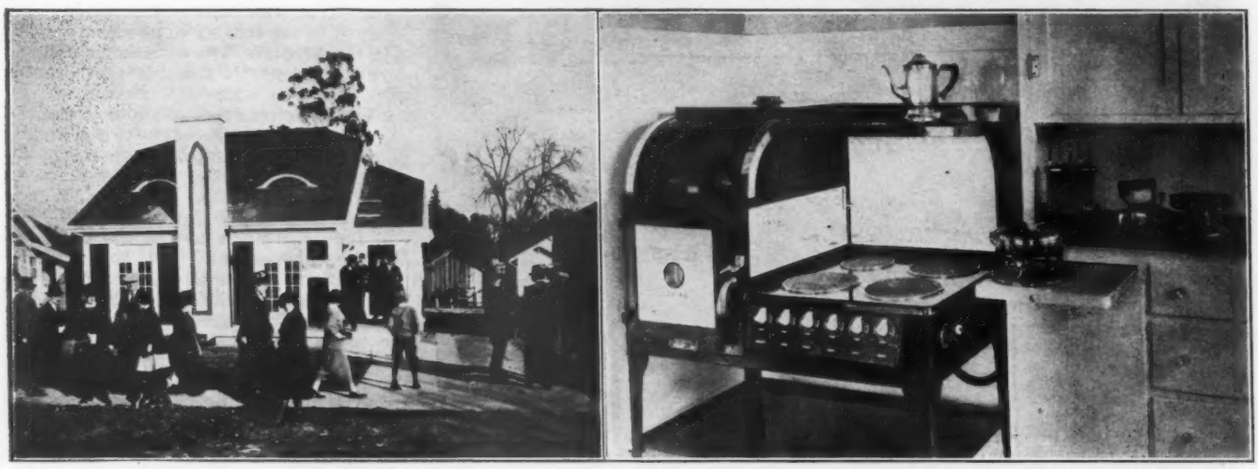
Advance publicity aided greatly in announcing the fact that the electric home was to be opened to the people of the city on Feb. 1. This publicity was arranged for by the Cooperative Campaign representatives in cooperation with the local electrical men. On the first Sunday that the home was open, the leading morning paper carried 226 in. of display advertising calling attention to the home. One hundred and forty-six in. of space was individual concern advertising and was paid for by the electrical men of the city and by other concerns that were responsible for the displaying of the home. In addition to this there was a half-page cooperative advertisement announcing the home and giving complete directions as to how to reach it.

Just how successful the men in charge of the home were in getting people to visit it, is shown by the attendance record which was kept by a counter stationed at the front door. This man kept a careful count of the attendance and passed to each visitor a small leaflet giving a brief description of the home. Four out of the ten days that the exhibit was opened it rained and this had a decided effect upon the attendance as the daily count, given below, indicates. Considered from the point of view of the electrical contractor-dealers of San Jose, the electric home is reported to have been of considerable value. Many inquiries concerning the proper wiring of new homes and several requests for information relative to the installation of convenience outlets in old homes were received during the time that the home was open. The builder of the home was present much of the time that the public were in attendance and noticing that the visitors were greatly interested in an adequate supply of convenience outlets, announced that in the future he would add 100 per cent to his electrical wiring specifications in order that his houses could have more convenience and switch outlets.

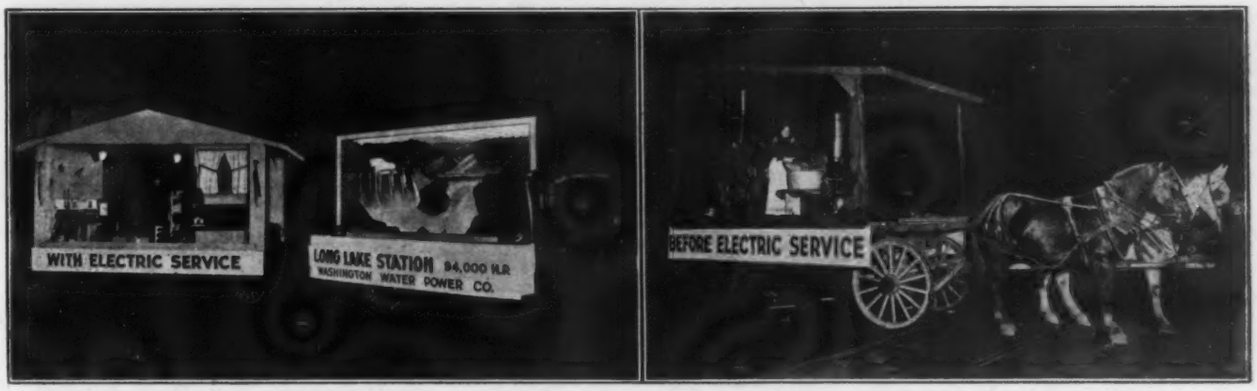
Make a visit to the Electrical Home today and see the display of electrical appliances
San José ELECTRIC COMPANY
77 South Second Street • Phone San Jose 551

Advertisements of this character were used by dealers to attract attention to the electric home.

Date	Attendance	Weather
Feb. 1—Friday	257	Raining
2—Saturday	467	Clear
3—Sunday	1,563	Clear
4—Monday	397	Clear
5—Tuesday	258	Raining
6—Wednesday	70	Raining
7—Thursday	182	Raining
8—Friday	294	Clear
9—Saturday	365	Clear
10—Sunday	1,057	Clear
Total,	4,910	



The exterior of the San Jose home appealed to the eye of the passer-by and the kitchen appealed to the women on account of its electrical devices.



The three floats shown above were used by The Washington Water Power Company to illustrate how electricity has made the home of the present more livable than the one in which electricity was not used.

Telling the Electrical Story in the City Parade

The Washington Water Power Company Uses Three Floats to Show Advantages of Using Electricity in the Home

Take yourself, for example. Do you prefer to read an advertisement that is composed of a large amount of closely set type or another which is made up largely of illustrations which are only explained by short captions? Which of the two advertisements would grasp your attention and hold it longer? Which of the two, if you were to give them both merely a passing glance, would impress you the more forcefully?

In nine cases out of ten the illustrated advertisement would be the one that you would prefer to read, the one that would grasp your attention the more firmly and the one that would do more toward selling you the merchandise.

This idea of telling the story in pictures was put to work by The Washington Water Power Company last fall with excellent results. The occasion for the presentation of the electrical message in pictures was the Hallowe'en Parade which was held in Spokane, Wash. The central station company prepared its floats with the idea of showing at a glance the results of the development of water power. The leading float represented the old-fashioned kitchen with a smoking range, a woman doing the family washing, a small boy studying by the light of a kerosene lamp, and a negro beating a rug. This float was purposely made crude tnd rough in appearance; even the illuminated pumpkin was made to have a sad expression. In order to bring out the idea of old times, this float was drawn by a team of horses.

Following this, the next float bore a painting of the Long Lake Power House of The Washington Water Power Company. The painting was 7x14 ft. and was illuminated by spotlights and concealed footlights. The third float, which followed the picture of Long Lake, showed a cross-section of a modern kitchen, with electric range, radiant heater, washing machine, and vacuum cleaner, with a housewife in charge. This float carried a 90-volt storage battery on the front end, concealed by the dummy breakfast nook, and all lights and power for the modern kitchen and the picture of the Long Lake plant were supplied by this battery. The washing machine had a glass end with a light inside and the radiant heater was provided with a red light lamp. Two ceiling fixtures were fitted with 50-watt lamps.

The three floats received much favorable comment and they undoubtedly constituted an effective advertisement of the electrical industry, being seen as they were, by probably 25,000 people. The commercial department of The Washington Water Power Company designed the floats and supervised their construction and operation.

FITTING A BOOT TO A BUNION

By JOE OSIER

"No man liveth and no man dieth unto himself."

So said the philosopher as he rammed an idle hand in an empty pocket, the while wondering where the next day's fodder was coming from.

Back in the days when all industry was young; when the owners of various plants and properties were their own foremen—when they wore their old clothes and did heavy lifting and—

Got acquainted with the working class—

Men hugged close to their ambitious hearts one little idea or one set of ideas, fearing to impart their knowledge lest some competitor acquire their secret, place it in practice and—

Win their marbles—but—

Today, Ol' John Business Man, personified for my purpose by any up-to-date Electrical Contractor-Dealer—

Removes a real Flor de Funeral from his smiling lips, rises to his feet in any and every meeting of his fellow-craftsmen and—

Gladly gives them the benefit of the co-ordination of his brain and head muscles. In other words, he comes as clean as a rain-drenched, wind-swept beach.

If he has developed a way to display and move a certain line of merchandise, he feels it is his duty to explain it; he cheerfully imparts his experiences in making collections, extending credit and he will take an unlimited amount of time to detail any problem which he has met and overcome but—

He expects to be paid back in like coin and, provided his brother-competitors are the right sort, the cheery exchange of confidences will continue until the gong ends the final round of the session.

Here is one straight from the grease: No Business Man, no matter how many automobiles he supports, has a monopoly on ideas. He may know a certain thing better than any man in the industry but when it comes to something else, also important—

O Sailor, Beware!

His vision may be obscured—and so it goes.

And, regardless of what men in the electrical, or any other game, may say to the contrary—

Organized effort is equal to many times the separate efforts of the individuals concerned and—

An Association of men of any trade who do not foregather and feast and exchange ideas and cheer for one another—

Might just as well tear down their emblems, furl their banners, shoot their officers on the spot and—

Go it alone until their creditors and the law puts an end to the monkey business.

"If we do not hang together, we'll hang separately." And this applies to electrical men as well as rebels.

INDUSTRIAL NEWS

Conference Reports No Critical California Power Shortage

Representatives of the leading power companies in southern California announced at a meeting of spokesmen of both private and municipal electrical utilities, that at present there is no critical shortage of power. The meeting was called by the California State Railroad Commission to discuss the possibility of a power shortage in the southern part of California. The conference was held on March 10 before Commissioners Clyde L. Seavey and Harley W. Brundige.

Those in attendance at the meeting deemed it advisable to appoint a committee consisting of spokesmen for the private and municipal enterprises and headed by Lester R. Ready, chief engineer of the Railroad Commission, to investigate the situation thoroughly. The committee is to make a report before the end of March and is to advise whether radical curtailment is necessary. It was considered that the situation does not warrant the creation of a power administration to regulate the use of electricity.

This situation has been made more acute by the early demands for power for irrigation. Representatives of the Southern California Edison Company reported that rains, which recently fell in the southern part of the state, had greatly relieved this trouble both in cutting down the demand for power and increasing the available water for power development. G. C. Ward, vice-president in charge of operation and construction for the Edison company, stated that even if no more rain fell in the territory the snows now in the mountains would prevent any difficulty until after July.

All of the power companies of the southern part of the state are cooperating in the exchange of power. Energetic steps which have been taken to increase the power supply and decrease the demands will greatly assist in forestalling a serious power shortage. Among the steps that have been taken are the placing in operation of new small generating units, the placing in operation of more or less obsolete generating plants and small industrial plants and the further interconnection between generating systems.

Power Company Men to Appear at Boulder Canyon Hearings

All of the power companies interested in the development of the Colorado River have been requested by the Committee on Irrigation of the House of Representatives to send representatives to Washington to testify in the hearings now in progress on the Swing-Johnson bill, which provides for the erection by the Federal Government of a high dam at Boulder Canyon.

While a very good case has been made before the committee by the proponents of the bill, which include Commerce Secretary Hoover and A. P. Davis, the former head of the Reclamation Service, the prospects for the passage of the measure are not bright. There is opposition to the bill on the part of those who, on grounds of economy, do not want to vote for a large appropriation. The principal opposition, however, will come from those who do not approve of this type of government construction when private capital stands ready to make the improvement.

The bill was considered exhaustively at the last session of Congress, but during the present session a new element has been brought into the proposal by the plan of the City of Los Angeles to use the Colorado River in augmenting its water supply. Various representatives of that municipality have appeared before the committee during the present hearing.

It is expected that a report, dealing with the erection of the Boulder Canyon Dam, will be presented by the fifteenth of this month. The report will be presented by a special advisory committee, appointed by the Secretary of the Interior to suggest what should be done in the proposal to build the dam at Boulder Canyon.

Bids for Cushman First Unit to Be Called March 27

The city council of Tacoma, Wash., has issued an official call for bids, to be opened March 27, for construction of the Lake Cushman power project dam and appurtenant works on the north fork of the Skokomish River in Mason County. Bids will cover the first unit of the Lake Cushman power development project, destined ultimately to furnish the city with 140,000 hp. of electrical energy. It will take 12 to 14 months for the manufacture and delivery of the power house turbines, generators, transformers and other equipment, from the date of contract, according to Ira S. Davisson, commissioner of light. The estimated work involved includes:

Earth excavation, 6,755 cu. yd.; earth embankment, 7,500 cu. yd.; concrete, 84,500 cu. yd.; structural steel, 63,000 lb.; rock excavation, 13,000 cu. yd.; reinforcing steel, 280,000 lb.; reinforced concrete, 360 cu. yd.; diversion and power tunnel excavation, 14,200 cu. yd.; concrete lining, 2,300 cu. yd.; furnishing and setting valves.

The dam will be of concrete, constant-angle arch type, 275 ft. high; 80 ft. long at the base, and 800 ft. long at the crest. The appurtenant works include gates, valves, tunnels, penstock connections, screens, intake tower and chambers.

Port of Kalama, Wash., Seeks to Acquire Power Sites

Alternative applications, indicating development of a large hydroelectric plant on the Kalama River in Cowlitz County, Wash., have been received by Marvin Chase, Washington supervisor of hydraulics, from the Port of Kalama. The applications were filed for the port by J. G. Gruver. It is understood that the energy developed will be used largely for operating a pulp and paper mill.

The application for Site No. 1 asks for an appropriation of 520 sec.-ft. of water for the development of 10,386 hp. at an estimated cost of $750,000. A conduit line 4 miles long would be constructed while the impounding dam is designed to be 50 ft. high, 50 ft. wide on the bottom and 125 ft. wide on top. The water will be used under a head of 175 ft.

The plant proposed at Site No. 2 will develop 23,863 hp., using the water under a 700-ft. head. Permission to appropriate 300 sec.-ft. of water is asked for this plant, which is estimated will cost approximately $2,000,000. Designs call for a dam 30 ft. high, 50 ft. wide on the bottom and 100 ft. wide on top. The conduit line will be 12 miles in length. The supervisor of hydraulics has been asked to withhold action on the applications, pending completion of preliminary surveys.

A third application, which followed the first two by only a few days, has also been filed by the port officials. The latest application seeks permission to appropriate 180 sec.-ft. of water from Swift Creek in Skamania County, for the purpose of developing a hydroelectric plant with an estimated capacity of 16,363 hp. The proposed work will include the construction of a dam 30 ft. high and 100 ft. long on top, a conduit line three miles long and a power house, all of which will cost approximately $1,300,000. It is understood that the applications are alternative and that the most feasible one will be selected.

The San Joaquin Light & Power Corporation has entered into a fifteen-year contract to purchase 6,500 kw. of electrical energy from the Turlock Irrigation District from the latter's Don Pedro hydroelectric plant in central California. The power company will begin construction immediately on a sixteen-mile 66,000-volt transmission line to bridge the gap between Turlock and Livingston, Calif., to accept delivery of the power. It is expected that the line will be completed by April 1. This interconnection will prove important in the event of a power shortage in central and southern California.

Date Set for Colorado Springs Utility Purchase Vote

With the designation of May 6 as the date for a special election to determine whether or not a bond issue will be authorized for the construction of a municipal light plant and distributing lines, the situation in Colorado Springs, Colo., has been clarified to an extent. Second only in importance to the outcome of the election is the settlement of difficulties existing at the present time between the city and the Colorado Springs Light, Heat & Power Company.

The city council has already passed an ordinance establishing the date of the special election but there is a possibility of its being changed to a later date if a report on the valuation of the present company is not completed in sufficient time. This action was taken following the recent submission to the council of another report by Franklin P. Wood, consulting engineer of Denver, covering the cost of a new destribution system coupled with estimates for building new steam and hydroelectric plants.

Mr. Wood's report covered two alternative propositions, the first for serving only Colorado Springs at an estimated cost of $1,004,778, and the other for serving all customers now supplied with light and power by the present company at a figure of $1,252,778. This sum includes provisions for a contingency fund. The latter arrangement concerns service to nearby communities outside of the corporate limits of the city.

The action to be taken by Colorado Springs will also affect the situation at Manitou, at the foot of Pike's Peak, where the present company is operating without a franchise. Representatives of the Manitou city council have already held several meetings with Colorado Springs officials to determine if possible the policy to be followed by the former municipality if the proposed bond issue is authorized.

Assurance that Manitou will receive light and power under favorable conditions in event Colorado Springs enters the municipal operation field was given at a joint meeting, Feb. 26. The definite arrangement for taking care of the power needs of Manitou was asked of the council in return for the right-of-way for the city's proposed transmission line across the southern border of Manitou. Nothing definite can be done pending the outcome of the election, although individual councilmen have expressed themselves as willing to treat Manitou as a favored customer.

Another phase of these negotiations is the possibility of Manitou buying its own distribution system with the purchase of power from Colorado Springs, because Manitou councilmen assert themselves more anxious to deal with the city than with the present company, which is a subsidiary of the United Gas & General Electric Company.

Data from the Wood report is being used almost exclusively by Colorado Springs officials in preparing for municipal ownership. Reports from other engineers have been thrown in the discard as a result of the sentiment created in the issuance of a private report by General George W. Goethals, just prior to the election in June, 1923, when the present company was defeated in its efforts to obtain a new franchise.

An interesting note is sounded in the necessity of a steam plant as stressed by Mr. Wood, in contrast to the report of the late George G. Anderson of Los Angeles, who was definitely of the opinion that such a unit would be unnecessary. In his report Mr. Wood indicated possible delays caused by court litigation and the lapse of several years before the city could take over the full load of the present company, due to the present complicated controversy with the company.

The possibility of the city having to take over the street railway system in 1926 has deterred some municipal ownership advocates while others see in it a marked aid to the light plant problem.

Colorado Springs newspapers were adverse to the granting of a new franchise to the present company but of late have definitely announced policies opposing municipal ownership. Whether or not this will result in the formation of a citizen's committee or similar group to combat municipal ownership remains a question. Thtre is, however, general belief both in Colorado Springs and throughout the mountain region that an opposition movement will crystallize itself which, if it functions 100 per cent, can prevent municipal ownership.

Utility and Irrigation District Sign Water Use Contract

A contract, recently signed by the Pacific Gas and Electric Company and the Nevada County Irrigation District, provides for the development of approximately 140,000 acre-ft. of water on the south and middle forks of the Yuba River, and its diversion through Lake Spaulding and power plants of the Pacific Gas and Electric Company. The water developed in Jackson Meadows and Bowman Lake and diverted by district canals to Spaulding Reservoir, after passing through the power plants and being utilized in the development of hydroelectric power by the Pacific Gas and Electric Company, will be returned to the Nevada County Irrigation District for use in irrigation in Nevada County. Negotiations for such a contract have been conducted over a period of three years.

Under the contract, as agreed upon, the Pacific Gas and Electric Company will pay to the district for water diverted through the Deer Creek power house, $2 per acre-ft., and for water used through the Drum power house, $3.50 per acre-ft. For power to be developed in a plant to be constructed by the company above the Spaulding Reservoir, the company will pay the district one mill per kw-hr. generated. The total revenue to be received by the district from the Pacific Gas and Electric Company will be approximately $375,000 a year.

Among other features of the contract are the purchase by the Nevada County Irrigation District from the company of the latter's water distribution system in Nevada County. The price will be determined by the California State Railroad Commission.

The United States Senate has approved an appropriation of $250,000 for a hydroelectric plant to be installed on the Yuma (Ariz.) irrigation project.

Formulate Plans for June Bride Window Display Contest

Plans for June Bride Week which will be held in California June 2-7 will be made entirely by the June Bride Week committee of the advisory board of the California Electrical Cooperative Campaign, according to a decision reached at the meeting of the advisory board on March 5. The special committee, headed by P. H. Booth, Edison Electric Appliance Company, Los Angeles, will lay out plans for the week and will report its activities to the advisory board.

Among the plans that have been sanctioned so far are those which call for a special window trim contest. Dealers all over the state will be given the opportunity to enter the contest and will be supplied with the necessary materials to properly decorate their windows. Prizes will be awarded to those concerns that, in the opinion of the judges, have the most satisfactory windows. Judging will be primarily on the basis of sales value, originality, and artistic treatment of the display of electric appliances in connection with the June Bride campaign.

In addition to the usual prize offer that has accompanied the window trim contests in the past, the June Bride Week committee has announced that it will pay $1.50 to each dealer that submits photographs of his window display presented in connection with the June campaign. This award will be made only to those dealers not receiving prizes and will be made only once to each dealer, regardless of the number of pictures that he submits. This award is to be made to help reimburse dealers for the expenses of taking the pictures.

The June Bride Week committee has decided to conduct the campaign along approximately the same lines that were followed last year. The slogans will be duplicated and the window trim material will be designed along the same lines in order that the public may get to know the week as an institution. It is felt that by duplicating the effort that was made last year, the impression that was made at that time can be built up without any unnecessary duplication of energy.

Are to Conduct Lighting Sales Schools in California

Three schools for educating power company salesmen, contractors and dealers in the sale of proper lighting are to be conducted in California during the coming fall. The schools will be held under the direction of the lighting bureau of the Commercial Section of the Pacific Coast Electrical Association.

The plan is to give the men in attendance training in the fundamentals of illumination and equip them to lay out a lighting installation after a merchant has been interested through such agencies as the portable lighting exhibit of the California Electrical Cooperative Campaign. The schools will be held in San Francisco, Los Angeles and Fresno.

Pacific Coast representatives of The Hoover Company will meet in their annual sales convention in San Francisco March 17. The meeting will be held at the Clift Hotel and the various problems of the vacuum cleaner representatives will be discussed.

Electrical Facts Booklet May Be Published by Campaign

Plans for the publishing of a book of electrical facts, to be used in helping to train the staff of the California Electrical Cooperative Campaign in charge of the various electric homes, were discussed at the March 5 meeting of the advisory board of that organization. The plan was also considered to allow all electrical merchants to secure the booklet for the use of their salesmen. A committee was appointed to get out the booklet and was requested to have a dummy of the work ready for presentation at the next meeting of the advisory board, which will be held at Fresno, Calif., on April 11. The committee consists of: P. H. Booth, Edison Electric Appliance Company, chairman; W. L. Frost, Southern California Edison Company; F. H. Woodward, Great Western Power Company; W. S. Berry, Western Electric Company, and W. C. Heston, Electrical World.

During the meeting S. E. Runyon, secretary of the Furniture Dealers' Association, spoke on the Pacific Better Homes Bureau. Mr. Runyon requested the cooperation of the Cooperative Campaign in the move that is to be made to create a greater desire for home ownership on the Pacific Coast. The organization has as its purpose the education of the public; better homes; a lecture bureau; bureau of information and research; and the publication of a home and garden magazine. The method of organization will be to present the plan to various groups to get their support. No action was taken by the advisory board in regard to supporting the organization.

General reports were also received from the various committees of the advisory board, including those on June Bride Week, finance, and electric homes. Success with the electric home presented at San Jose was reported and preliminary reports from the Hollywood electric home indicated that the home there would also show satisfactory results.

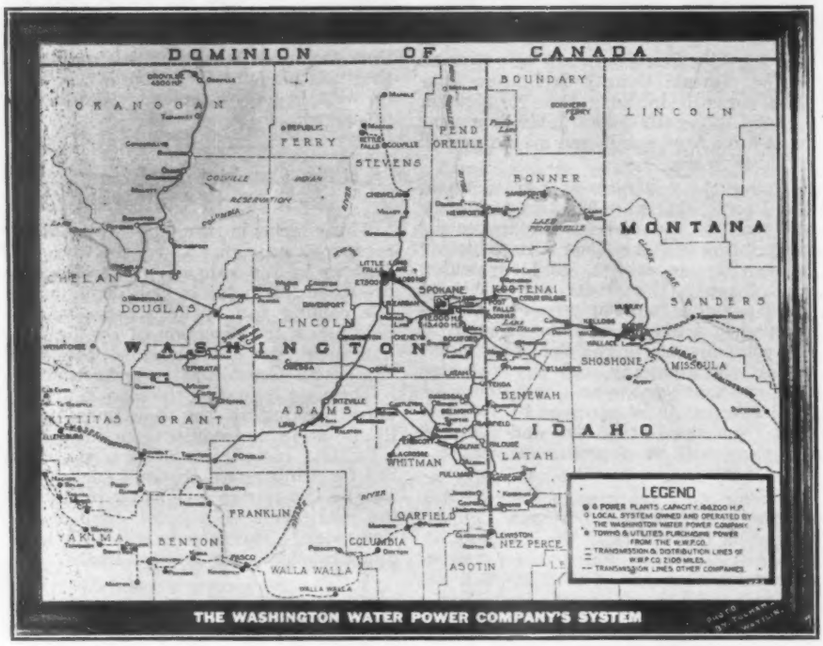
The advisory board deemed it advisable to call a meeting of the heads of all electric clubs of California, during the coming spring. It was decided that the meeting should be held at Coronado at the time that the Pacific Coast Electrical Association is holding its annual convention there.

Utility Is Conducting Kitchen Lighting Campaign

A campaign for better kitchen illumination in residences on the lines of the Pacific Power & Light Company was started on Feb. 1 and will continue until March 15. This is the first campaign of the character ever attempted by the company.

Work in connection with the educational campaign is being done by sales people in the various districts and the help of the regular people will not be used. The sales plan that is being employed consists mainly of letting the results sell better illumination in the kitchen. Toward this end the company is offering its customers correct kitchen illumination for one month free of charge.

H. T. Plumb, engineer, of the Salt Lake City, Utah, office of the General Electric Company, discussed the future possibilities of radio in an address to 400 persons at the high school auditorium at Boise, Idaho, Feb. 22. Transmission of power and pictures by radio were predicted for the near future by the speaker. He told of the efforts now being made in this line, and explained theories in which experiments are being conducted.



The map of the system of The Washington Water Power Company, reproduced above, was exhibited recently in the lobby of the Davenport Hotel, Spokane, Wash., for a period of a week. The map, which was illuminated, is 10 ft. long and 7 ft. high, and shows generating stations and local distribution centers by small electric lamps of different colors. After displaying the map at the hotel it was returned to the Electric Shop of the central station company where it had been on exhibition since last summer.

New Rate Schedules Are Set for Idaho Power Company

The Public Utilities Commission of the State of Idaho has rejected schedule number eight of the Idaho Power Company on the ground that it is unjust and unreasonable and would work a hardship on the consumer. In place of the schedule requested by the power company the commission has set forth an adjusted schedule that shows material reductions from the rates as filed by the company. The commission states that the schedule as authorized is subject to further changes if it proves to have any unreasonable features.

With the exception of energy for irrigation—the rates for which are the same as in the 1923 schedule—the new rates are to be applied throughout the territory served by the Idaho Power Company. The leading features of the new schedule are that water heating service will now be metered—instead of being a flat rate, as heretofore—and a minimum of $1 per month will be charged for lighting service. This minimum is to cover the first 10 kw-hr., after which the rate will be eight cents for 30 kw-hr.; five cents for the next 30 kw-hr. and four cents for the remainder.

The rate for cooking will be $1.50 for the first 50 kw-hr.; two and one-half cents for the next 50 kw-hr. and the remainder at two cents per kw-hr. The company must install at its own expense meters for water heating service and is empowered to charge six mills per kw-hr. with a minimum of $3.50 for a 1-kw. heater; $2.65 for a 750-watt heater; and $2.10 for a 600-watt heater. On new installations the rate will be one cent per kw-hr. with a minimum of $3.50.

Federal Power Commission Rules and Regulations Changed

By action taken by the Federal Power Commission at its meeting of Jan. 25, Regulation No. 14 of the Rules and Regulations for administration of the Federal water power act was amended, effective March 1, 1924, to read as follows:

Section 1, paragraph A—

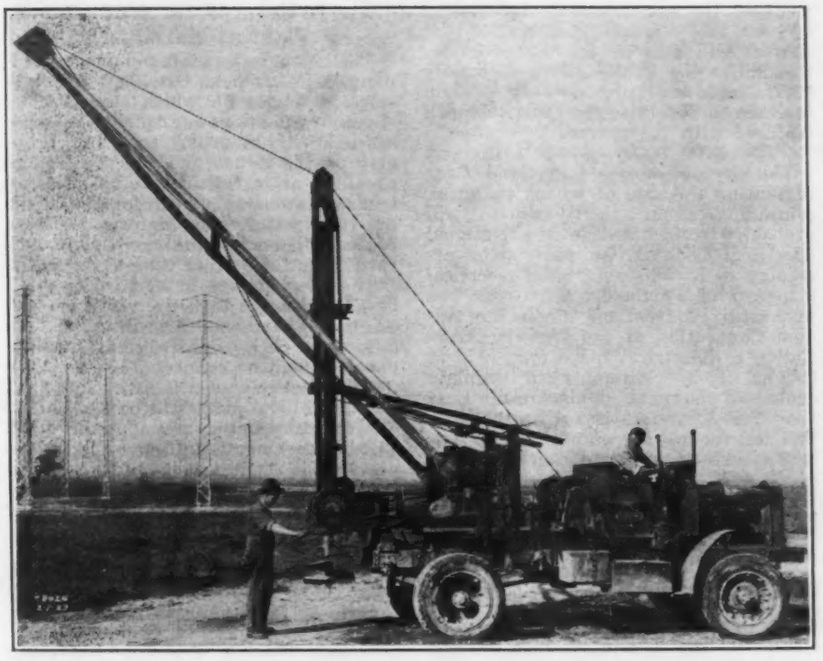
With respect to each project of more than 100 hp., there shall be a preoperation annual charge at the rate of 2 cents per horsepower of power capacity effective during the period between the issuance of the license and the first of January immediately following the date of completion of each part or unit. As each separate part or unit is completed ready for operation, the preoperation rate as to such unit shall cease on the thirty-first of December immediately following, and an operation rate will be substituted, which, for the first calendar year, will be 5 cents per horsepower of installed capacity; for the second calendar year, 10 cents per horsepower of installed capacity; for the third and each succeeding calendar year, 25 cents per horsepower of installed capacity.

Section 4, last sentence—

The charge shall begin on the first of January immediately succeeding completion of the project or each separate part or unit thereof.

The Commission now has in course of print the second revised issue of its Rules and Regulations embodying all amendments thereto. It is expected that copies of the new edition will be ready for distribution about April 1. Copies will be mailed upon application.

J. J. Agutter, formerly located at 1221 Fourth Avenue, Seattle, has moved to 1409 Fourth Avenue.



One of the earth boring machines used by the Southern California Edison Company.

Line Work Speeded Up by Use of Earth Boring Machines

Two specially designed earth boring machines, each mounted on a four-wheel-drive truck, have recently been put into service by the Southern California Edison Company. The machines are used for boring holes in the earth and for erecting poles. The new equipment has been found to be exceedingly useful in speeding the work of constructing new pole lines and in replacing poles on old lines.

The hole is bored by means of an auger similar to a wood bit. The guides in which the auger runs are adjustable as to angle and the hole can be bored either vertically or slanting. Power is derived from the drive-shaft of the truck itself. The boring mechanism can be rotated on the body of the truck to permit the boring of holes in various locations.

The machine can dig either 18 or 24-in. diameter holes to a depth of 8 ft. It carries a crew of two men who are able to do all of the work in connection with the boring of the holes and the erecting of the poles. A pole raising derrick is attached to the truck and when the truck is traveling, this derrick is lowered and the boring mechanism folded forward.

Considerable economy has been secured with the operation of the earth boring machines. According to the Southern California Edison Company, it has been found possible for one machine, manned by two employees, to dig sixty holes and set fifty poles in one working day, whereas by hand methods the average day's work consists in setting forty poles. The average cost of digging holes amounts to $1.47 per hole which is only about 47 per cent of the cost of doing the same work by hand. The machines have also been found to be useful in excavating for tower footings and for foundations as well as for digging holes for anchors.

Industrial Heating Schools to Be Held March 17-29

Another opportunity will be given this year for power and sales engineers of central stations to attend an industrial electric heating school. This work is under the direct supervision of the industrial heating committee, power bureau, Commercial National Section, National Electric Light Association. The purpose of these schools is to teach the fundamentals of electric heating, illustrate and show how to apply the apparatus available, determine the desirable and undesirable applications, enable the engineers to determine the power requirements and consumption, and give them sufficient information to intelligently solicit and serve the industrial heating load.

Two schools are given simultaneously by the Westinghouse Electric & Manufacturing Company and the General Electric Company, beginning March 17 and covering a period of two weeks. These schools are given free, the only cost being traveling and hotel expenses. Those taking the Westinghouse course should report to Wirt S. Scott, Mansfield Works, Mansfield, Ohio. Those taking the General Electric course should report to Harold Fulwider, Schenectady Works, Schenectady, New York. For enrollment on the course, communicate with Wirt S. Scott, chairman, industrial heating division, manager industrial heating section, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

An advance copy of the report on the utilization of the Trinity River, prepared by the California Power Board, has been received by the Federal Power Commission. The report states it is desirable that the Trinity River at Stuarts Fork be diverted into the Sacramento Valley. It recommends that no rights be granted which will conflict with such a plan.

Appropriation of Water Sought by California Applicants

Three permits to appropriate water in California for power purposes were issued by the Division of Water Rights of the Department of Public Works of that state during the month of February. All of the projects are of only minor importance.

Sixty-three applications for permits to appropriate water were received by the Division of Water Rights during the month, nine of which were for power projects. Four of the applications for power development sites were filed by the Fresno Irrigation District. Power development is in connection with the Pine Flat project. These applications cover the appropriation of water in Fresno County and are as follows: 120 sec.-ft. and 30,000 acre-ft. per year from the Kings River for the development of 15,000 hp.; 200 sec.-ft. and 10,000 acre-ft. per year from the South Fork of Kings River for the development of 7,000 hp.; 150 sec.-ft. and 50,000 acre-ft. per year from the Middle Fork of Kings River, with which 19,000 hp. is to be developed; and 200 sec.-ft. and 45,000 acre-ft. per year from another site on the Middle Fork of Kings River for the development of 10,000 hp.

The Feather River Power Company, San Francisco, has applied for the use of 13,290 acre-ft. of water per year from Gray Eagle, Smith and Jamison Creeks in Plumas County. The estimated development is 14,926 hp. The City of Los Angeles has applied for a permit to appropriate 50 sec.-ft. and 40,000 acre-ft. of water per year from Rock Creek in Mono County. The city proposes to develop 10,841 hp. at an estimated cost of $400,000.

Two applications were also filed in which no estimation as to the size of the project was made. The Bear River Water & Power Company, Auburn, wishes to appropriate 250 sec.-ft. and 100,000 acre-ft. of water per year from the Bear River in Placer and Nevada Counties. The use of 30 sec.-ft. of water from the South Fork of Pit River in Modoc County is requested by John P. Booth, Likely, Calif.

Investigation of Priest Rapids Power Project Started

A field investigation of the proposed $100,000,000 power project of the Washington Irrigation & Development Company at Priest Rapids on the Columbia River, has been undertaken by five United States Army engineers under Col. W. J. Barden, United States District Engineer, Seattle, Wash.

The development company has asked the Federal Power Commission for a license to develop the Priest Rapids power project, and the application was referred to Col. Barden, as the Columbia River is under the jurisdiction of the War Department. The only protest, to date, against the license is from the salmon packing interests of the lower Columbia River. This group alleges that the dam the company proposes to build, at a cost of $28,000,000, will prevent salmon from reaching their spawning grounds at the Columbia headwaters.

Agents of the power company have been assembling affidavits to show that the salmon run in the upper Columbia has been decreasing.

New Rate Schedules Established for Midland Corporation

New electric rate schedules have been established for the Midland Counties Public Service Corporation by the California State Railroad Commission. The utility supplies electricity in the cities of Coalinga, Paso Robles, San Luis Obispo, Santa Maria, Arroyo Grande and surrounding and intervening towns.

The new schedules provide but one lighting rate, which is identical with the rate in effect in King City, Salinas, Monterey, Santa Cruz and Watsonville, a similar territory. This rate will cause reductions in the cost of energy for lighting varying with the conditions under which the individual consumers have been supplied.

Agricultural users as a class will receive substantial reduction, being placed upon a seasonal basis, and no longer being required to pay monthly minimums. The new rate is practically equivalent to the rate in effect upon the San Joaquin Light & Power Corporation system, including company ownership of transformers, and is lower than the agricultural rates in effect in the coast territory to the north.

Heating and cooking rates are modified by the inclusion of a minimum requirement, and an increase in the last block of energy from 1 cent to 1.3 cents. Those consumers receiving service under the combination lighting and cooking schedule will receive reductions for service of less than 160 kw-hr. per month, which is above lighting and cooking requirements for a small family. Use of energy in greater amounts will be at an advanced rate.

Service to oilfields has in the past been at the rate of 1.4 cents per kw-hr. The new rate increases this service to 1.5 cents and includes a minimum charge based upon connected load.

Forty Men Are to Attend Short Meter Course in Denver

Nearly forty central station representatives have applied for admission to the second annual short course of meter instruction at the University of Colorado during the period March 17-21, according to latest advice received from the Rocky Mountain division of the National Electric Light Association.

The first course, held during spring vacation at the university last year, was so well received that a number of added features and improvements, for the ensuing session, have been developed by the engineering faculty under the direction of Prof. C. M. McCormick. More attention will be given to evening meetings and seminars, it is understood.

Although primarily under the direction of the extension department of the University, the electrical engineering department assumes responsibility for the course which will include reading, calibration, methods of connection and testing, and similar subjects related to meters and electrical instruments. A small registration fee is charged.

F. C. Yerkes, superintendent of the electric meter department of the Public Service Company of Colorado in Denver, will be one of the instructors again this year. He has just returned from a similar duty rendered at Iowa State College where the sixth annual course for electric meter men was held with an attendance of 150. H. P. Tewksbury, head of the stores department of the same central station and one of the original sponsors of the course, will also be on the program. In addition the Public Service Company of Colorado will provide several shop foremen to supervise the practical work featured with the course.

The city ordinance of Portland, Ore., regulating the sale of wiring material, containing about thirty words, will probably be included in the National Electrical Code at an early date, according to L. W. Going, chief electrical inspector of Portland. Mr. Going has just returned from the nineteenth Annual Convention of the Western Association of Electrical Inspectors, held at Omaha, Neb. Attempts to regulate dealers of electrical supplies in the East have failed, and it is for this reason that the request for an outline of Portland's method of regulation has been made.

Long Spans Suspended on Wooden Terminal Structures

Two spans of transmission line wire, thought to be the longest supported on wooden terminal structures, have recently been erected and the line put into service by the San Diego Consolidated Gas & Electric Company of San Diego, Calif. The first of the two spans is 4,402 ft. in length and the second is 3,397 ft. long and is immediately adjacent to the longer span.

It was originally intended to carry the line across the two canyons on one span that would be over 7,000 ft. long. This was found to be impossible because sufficient clearance could not be secured.

The line is an extension from San Diego to Alpine and was put into service as a two-wire 11,000-volt line, provision being made for a third wire which may be added at some later date. Climatic conditions, absence of storms and other factors make such long spans possible whereas they would be impracticable under other conditions.

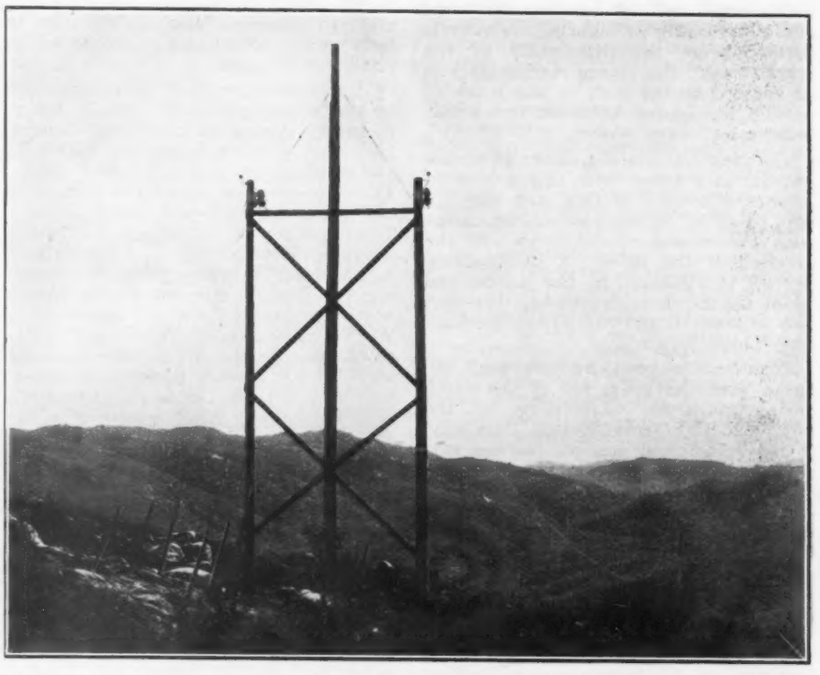
Site Is Secured for New Steam Plant at Marshfield

The Mountain States Power Company, of Marshfield, Ore., has definitely selected a site on which the $750,000 steam turbine power plant will be erected. About 90,000 sq. ft. of property on the Kruse and Banks holdings provides an excellent site, permitting transportation to and from the plant by rail, water and highway. These routes will enable the company to secure "hog fuel" from the nearby mills.

The first unit to be constructed will be large enough to house six times the original equipment. The initial installation will be a 6,600-hp. steam turbine to which will be connected a generator that will develop 5,000 kw. The final capacity of the plant will be 30,000 kw. The company anticipates that the plant will be working to full capacity in ten years. The boilers will be equipped to burn mill refuse primarily, but will have facilities for either oil or coal if "hog fuel" is not available at all times.

The Grays Harbor Railway & Light Company of Aberdeen, Wash., has asked for appropriation rights from the North and East Forks of the Quinault River in Grays Harbor County. Reservoir sites are also asked, but no details of proposed construction have been given, as preliminary surveys have not yet been made.

The combined forces of the Pacific Telephone & Telegraph Company of Hoquiam and Aberdeen, Wash., and the employees of the Western Electric Company engaged in enlarging the equipment of the Aberdeen and Hoquiam telephone offices, met at an informal banquet at the Hotel Washington in Aberdeen recently. H. V. Collins, manager of the Pacific Telephone's Aberdeen office, R. H. Phillips, who superintended the installation of the new equipment, and C. M. Osborn, Aberdeen wire chief, gave informal addresses.



Wood pole terminal supporting one end of 4,402-ft. span of San Diego Consolidated Gas & Electric Company's 11,000-volt line between San Diego and Alpine, California.

Washington Utility Agents Hold Annual Sales Meeting

The annual meeting of the twenty-five district and local managers of The Washington Water Power Company of Spokane, Wash., was held Feb. 13-15. J. F. Farquhar, general agent in charge of sales in the outlying towns, presided at all of the meetings.

Matters of current interest in sales of merchandise were discussed. On Feb. 14 D. L. Huntington, president of the company, gave a presentation of the general need for tax reduction, with special reference to the weakness of the so-called Erickson Super-Power Bill which has been agitated in Washington. One of the meetings was addressed by an engineer of the sales department on the subject of "Domestic Refrigerating Machines," and then the whole group visited the manufacturing plant of the Enterprise Manufacturing Company in order to inspect the refrigerating machines made by that company.

Set May 1 as Completion Date for Gorge Creek Plant

R. C. Storrie & Company, Seattle, Wash., contractors, who are erecting the Gorge Creek Plant of the Skagit hydro-electric project under development by the City of Seattle, have announced that they can complete the plant by May 1, and ask the Board of Public Works for an extension to this date. The firm has already been granted two time extensions on their contract which called for completion Sept. 22, 1923.

The terms of the contract provided that the firm was to pay $500 a day to the city for every day after Sept. 22 that the work was unfinished, but the board has not demanded fulfillment of the penalty terms because of difficulties over which the contractors have had no control, including forest fires, floods and strikes. It has been suggested by certain city officials that the city take over the contract and undertake the completion of the Gorge Creek Plant, but this plan presents difficulties that make it inadvisable to proceed, other members of the council believe.

Serial Reports of Prime Movers Committee Published

"The Design and Maintenance of a 1,500-kw. Central Station Plant" is the title of a paper recently published by the National Electric Light Association. The booklet is known as Paper No. 24-1 and is the serial report of the prime movers committee of the 1922-23 Technical National Section of the Association. The report will not be distributed at the 1924 convention.

Papers No. 24-2, 24-3 and 24-4, all of which are serial reports of the same committee, have also been published. The titles of these booklets are, respectively: "Boiler and Turbine Room Instruments"; "Stacks and Flues" and "Operating Code Manual." Prices of the four booklets to members vary from 10 to 20 cents.

Oliver T. Erickson, who has for some years been a councilman of Seattle, Wash., and who was a candidate for re-election at the recent municipal election held in that city, was defeated by a large plurality. Mr. Erickson has been called "the Father of Municipal Ownership" and has been several times re-elected to the city council on a platform of municipal ownership.

The California Oregon Power Company is reconstructing the 66-kv. transmission line extending north from its Copco plant in California over the Siskiyou Mountains to Medford, Ore. New poles are being set and new wire strung. The reconstruction work is being carried on with no interruption to service.

The electrical message was presented to the people of Denver, Colo., by this booth of the Public Service Company of Colorado at the recent Industrial Exposition of the Colorado Manufacturers' Association.

Books and Bulletins

CONTINUOUS CURRENT CIRCUITS AND MACHINERY

By MORECROFT and HEHRE. 467 pages. 377 illustrations. Published by John Wiley & Sons, Inc., New York.

This text, the first of a series of two, the second to deal with alternating currents, has been prepared according to the authors, for the purpose of students in engineering schools. The material and the method of presentation is such that the ordinary college course in physics is an adequate preparation.

As a basis for the principles to follow, the electron theory is treated in the first part of the book. The authors feel that the student familiar with this theory will find his work far more interesting as many of the phenomena given as empirical facts seem reasonable from the electron viewpoint.

The fundamental principles of changing magnetic fields and the resulting induced voltages which underlie the operation of practically all electrical apparatus, have been given considerable amount of space in the text. Electric and magnetic circuits are treated in sufficient detail for the solution of all ordinary problems.

A feature of the book is the use of oscillograms as a means of amplifying a formula or illustrating some feature of operation of a machine. Oscillograms showing the flux distribution of a commutating pole generator when carrying no load and when carrying half load are an example.

Chapters have been devoted to continuous current meters, parts of a dynamo electric machine, the continuous current generator, and the continuous current motor. Efficiency, heating and rating are next treated, followed by a chapter on auxiliary apparatus used with this class of machinery. As a logical conclusion in a book of this type the two final chapters cover the various types of batteries in general use and the operation and care of continuous current machinery. As an appendix a set of fifteen experiments is given showing the procedure to be followed and the theory involved in each experiment. Fifty-nine pages of the text are given over to this important phase of engineering instruction.

For use as a text the problems at the end of most of the chapters are quite valuable. Throughout the book one is struck with the clear explanations of the various theories involved, while hand in hand with this the practical application is described in a thorough manner.

The illustrations throughout are good and up-to-date. In addition to being an excellent text for class room work, the book could well be used as a means of reference covering this important phase of electrical engineering.

E. R. S.

Reynolds Electric Company, Chicago, Ill., has announced that its New York City office, under the direction of C. W. Ellis, has been moved from 120 West 32nd Street to 129 West 31st Street.

Meetings

Election of Officers Is Held by Pacific Coast Jobbers

Rudolph Holterman, manager of Fobes Supply Company, San Francisco, Calif., was elected president of the Pacific Coast Electrical Supply Jobbers' Association at the quarterly meeting of that organization held at Del Monte, March 6-8. At the same meeting Albert Elliot was re-elected secretary-treasurer of the association. T. E. Bibbins, president of the Pacific States Electric Company, San Francisco, was selected to represent the Pacific Coast branch of the jobbers' association at the annual meeting of the National Electrical Supply Jobbers' Association to be held at Hot Springs, Va., June 4-6.

The aspects of the publishing business were briefly told at the open meeting of the association held on the morning of March 8. Walter V. Woehlke, managing editor of Sunset, told of the relationship of the general magazine to its field, emphasizing the responsibility of the editors to the readers of the magazine. C. T. Hutchinson, McGraw-Hill Company of California, addressed the jobbers on the responsibilities of the trade paper.

Oakland Electric Club Elects Officers for 1924

T. D. Rosenberg was elected president, Herbert Bell was elected vice-president, and George J. Duncan was elected secretary-treasurer of the Oakland Electric Club at the annual election recently held at the Hotel Oakland, Oakland, Calif. Walter Ayden, manager of Fobes Supply Company, Oakland; Clark Baker, of the National Lamp Works, Oakland; Fred H. Crane, Newton Hopkins and George Tudhope were elected directors.

Work of Salt Lake City Lighting Service Bureau Lauded

The first "get-together" meeting for the year 1924 of the electrical industry's various branches in Salt Lake City, Utah, was held at the Chamber of Commerce on the evening of Feb. 21. The meeting was held under the auspices of the Rocky Mountain Electrical Cooperative League, and an interesting evening was enjoyed by the seventy-five representatives of the various electrical interests present.

A motion picture illustrating correct merchandising methods was displayed as a feature of the evening's entertainment.

Stanley A. Stevens, manager of the Stevens Sales Company, and a member of the advisory board of the league, outlined the history of the present Lighting Service Bureau which is now operating in the Salt Lake City territory.

L. B. Gawan, of the Utah Power & Light Company, and one of the most active representatives of the Lighting Service Bureau, discussed the activities of the bureau during 1923. In the course of his talk Mr. Gawan stated that 280 stores in Salt Lake City had been surveyed during the year 1923, of which 52 had made marked improvements in their lighting as a result of the recommendations of the bureau.

H. M. Ferguson, president of the Rocky Mountain Electrical Cooperative League, in a brief talk, commended the good work which is being done by the Lighting Service Bureau, and predicted that in its future activities even a greater amount of good would be accomplished.

Reports of "Smiles Armies" Are Made to San Diego Club

The "Red" army of Wm. Boyce, the tall men of the San Diego (Calif.) Electric Club, was accounted victor over the "Black" army of shorter members led by Herbert Rose, at the March 4 meeting of the club. As a result the tall members were the recipients of a free meal tendered them by their shorter fellows.

Although final returns were not all in and the campaign for "courteous service" not definitely closed, the "red" army was declared winner, with nearly 650 "smile" members enrolled. The "black" army for a long time seemed the certain leaders, from preliminary reports at least, but only turned in 575 members.

With "Doc" Holloway as chairman of the better business methods committee, the idea of better business was carried out in a comprehensive and well organized speech by a well known Ad Club speaker, Tom Shore. In the same meeting it was voted that the Electric Club hold its June 17 meeting jointly with the Pacific Coast Electrical Association delegates at the Coronado Hotel.

COMING EVENTS

Executive Committee, Commercial Section, Pacific Coast Electrical Association
San Francisco, Calif.
March 21, 1924

Engineers' Society of Pasadena—
Pasadena, Calif.
April 10, 1924

Wyoming Utility Association—
Annual Convention—Cheyenne, Wyo.
May 5-6, 1924

Rocky Mountain Division, National Electric Light Association—
Quarterly Meeting—Cheyenne, Wyo.
May 5-6, 1924

Rocky Mountain Committee on Public Information—
Quarterly Meeting—Cheyenne, Wyo.
May 5-6, 1924

National Electric Light Association—
Annual Meeting—Atlantic City, N. J.
May 19-23, 1924

The Electric Power Club—
Absecon, N. J.
May 26-29, 1924

Pacific Coast Electrical Association—
Annual Meeting—Coronado, Calif.
June 17-20, 1924

Work is being completed on the installation of a new street lighting system for the town of Richmond, Utah.

Electric Transportation Meeting Discusses Traffic Problem

The Electric Transportation Association, San Francisco, Calif., held its regular meeting at the Fairmount Hotel, San Francisco, on March 13. K. I. Dazey, representing the CT electric truck, is president of the association and presided. The meeting was addressed briefly by H. E. Sandoval, manager of electric sales, of the Pacific Gas and Electric Company. Mr. Sandoval spoke on the success of cooperative movements and particularly of the remarkable progress of the Electric Truck Association in presenting the electric vehicle to the commercial field of the San Francisco Bay district.

V. W. Hartley, executive secretary of the California Electrical Cooperative Campaign, told of the plans of the Campaign in assisting the promotion of the electric vehicle. Capt. Henry Gleason, head of the traffic department of the San Francisco police department, spoke at length on "The Relation of Motor Vehicles to Traffic." He gave in detail some of the problems of traffic regulation and told of some of the plans that have been advanced for the relief of congestion, these plans including such measures as narrowing the sidewalks, cutting off a part of building fronts, running traffic at overhead or underground levels and the elimination of pedestrian traffic from the streets. Capt. Gleason also made it apparent that city traffic must be regulated for the orderly conduct of business and commercial pursuits rather than for the use of pleasure vehicles. An interesting comparison of the traffic problems of San Francisco and other cities of similar size also featured his remarks, and he said that if the electric vehicle would assist in solving the traffic problem it would be welcomed by the police departments of the country.

W. A. Hillebrand, high tension engineer of the Ohio Brass Company, San Francisco, was the principal speaker at the monthly meeting of the Utah chapter of the American Institute of Electrical Engineers held at Salt Lake City on the evening of Feb. 21. Mr. Hillebrand spoke on the subject of "High Tension Transmission."

The Department of Electrical Engineering of Stanford University has announced that applications for the Elwell Scholarship in electrical engineering will be received until April 1. The scholarship carries with it a stipend of $500 and is for the purpose of aiding a young man to undertake a year of graduate study in the university's electrical engineering department. Details concerning the award of the scholarship may be received from Prof. Harris J. Ryan, executive, electrical engineering department, Stanford University, California.

A revision of the code for electric meters, approved by the American Engineering Standards Committee in 1922 as "American Standard" is now being arranged, under the sponsorship of the Association of Edison Illuminating Companies, the Bureau of Standards and the National Electric Light Association.

Manufacturer, Dealer and Jobber Activities

The Lapp Insulator Company, Le Roy, N. Y., is constructing an addition to its present plant that will double the present capacity. Among other features will be one of the largest continuous kilns in use.

The Benjamin Electric Manufacturing Company, Chicago, is now producing a socket for radio vacuum tubes called the Cle-Ra-Tone. The tube holding element of the socket floats on light springs which act as shock absorbers and neutralizes all interfering vibrations which ordinarily would cause "tube noises." The general effect is clearer reproduction. This shock absorbing feature also protects the lamp and is recommended by the manufacturer for use with portable receiving sets which are subjected to shocks in moving from place to place.

The General Electric Company has recently brought out a new automatic starter—the CR-7022—designed for use with slip-ring induction motors. It is generally similar to the CR-7056 starter for squirrel-cage motors, recently put on the market. The CR-7022 utilizes the same case, contactors, timing device and double-pole overload relay, but the accelerating contactor and starting resistor are in the secondary circuit of the motor, and three extra terminals are provided for connection to the motor secondary. As is the case with the CR-7056, this starter differs from others on the market in the employment of a magnetic drag timing device and a thermal overload relay.

Dwight P. Robinson & Company, formerly in the Hollingsworth Building, Los Angeles, Calif., have moved to new quarters at 303 Union Building, that city. C. C. Thomas is western representative for this company, the head office of which is in New York City.

The Globe Electric Supply Company, Denver, Colo., is handling Holophane reflector products in the Rocky Mountain region.

Dunham, Carrigan & Hayden, San Francisco, Calif., have been appointed jobbers for northern California for the Rutenber Electric Company, Marion, Ind. A complete stock will be carried at San Francisco. This stock will include ranges and socket devices.

The P. A. Geier Company, Cleveland, Ohio, has announced that Listenwalter & Gough, electrical jobbers of Los Angeles, are now the largest wholesale distributing agency for Royal cleaners, having passed the sales marks established and long held by a distributor in the East.

The Line Material Company, South Milwaukee, Wis., has just perfected a new type of transformer hoist, called a Davit Hoist. In general design this hoist is built similar to a boat davit. Two brackets are slipped over the crossarms and the hoisting block is hooked into the eyebolt. The brackets are made of malleable iron and will accommodate up to a 4x5-in. crossarm. The top bracket is adjustable, sliding on the lower section of pipe to allow for varying distances between crossarms. The lower section of the davit is made of 2½-in. diameter steel pipe; the upper section is 2-in. diameter steel pipe, fitting into and swiveling on the lower section, so the transformer can be swung to right or left. The hoist measures 6 ft. 4 in. over all, and is entirely hot galvanized. Its maximum capacity is 1,000 lb.

The Mutual Electric & Machine Company, Detroit, Mich., has just issued a new catalog on "Bull Dog" dead front type safety switchboards. This catalog may be obtained on application to the factory.

The Reiman Wholesale Electric Company, Los Angeles, Calif., is building a new warehouse on Banning Street in that city. The company will have a spur track to the building which is expected to be ready for occupancy about April 15.

The Steel City Electric Company, Pittsburgh, Pa., is staging a special sales campaign on certain of its specialties and is making special inducements to dealers who participate in the offerings.

J. C. Naylor, Northwest distributor for Eden washing machines, has moved from 184 10th Street to 53 Fourth Street, Portland, Ore., where he will continue the distribution of parts for the Eden washing machine.

The Mine & Smelter Supply Company in Denver, Colo., has reorganized its electrical supply activities with the establishment of a Westinghouse department under the direction of Thomas J. Yonley, co-ordinating with the electrical department headed by A. E. Bacon.

The Benjamin Electric Manufacturing Company, Chicago, has established representation in the Rocky Mountain region in the appointment of Thomas W. Carlson. He will cover the states of Wyoming, New Mexico, and Colorado with headquarters in Denver, Colo.

C. Brandes, Inc., New York, has announced that Harry J. Walsh, who far the past year was assistant to Director Lane of the Joint Committee for Business Development, has been appointed assistant publicity manager of the company.

The Electric Vehicle Company has been organized in Denver, Colo., by William Wrenton, formerly head of the electric vehicle department of the Public Service Company of Colorado. A selling and service franchise has been secured from the Walker Electric Truck Company of Chicago. R. J. Bardwell and Edgar McComb are also associated with the new enterprise, the headquarters of which have been established at 700 Kittredge Building.

The Western Electric Company district office in Denver, Colo., has announced the addition of Henry Tewksbury to its selling organization. Mr. Tewksbury has been a jobber's salesman for a number of years and most recently has been associated with the Hendrie & Bolthoff Manufacturing & Supply Company in Denver.

The Engineering & Supply Company, 405 San Fernando Building, Los Angeles, Calif., has been appointed agent for K-P-F switches in southern California. J. G. Monahan is manager of the Engineering & Supply Company.

The Western Electric Company is offering two new lines of motors. These are a line of single phase motors, type SCR, adaptable to a wide range of industrial applications, and a line of continuous duty riveted frame polyphase motors, re-designed types KT and KQ. SCR motors start as repulsion type and operate on the squirrel cage induction principle which entirely eliminates the short circuiting switches heretofore considered essential. The KT polyphase motors form a new and complete line. They are 40 deg., continuous duty riveted frame.

Proving conclusively that A. W. Leonard, president of the Puget Sound Power & Light Company, of Seattle, Wash., thinks of other things than power projects running into the millions and other problems of equal magnitude and importance, we herewith reproduce a view showing him seated in the act of selecting his box seat at the Seattle Baseball Park which he will occupy on several sunny afternoons, come summer. In making this selection, President Leonard became fan No. 1 for Seattle's 1924 season. The gentleman at Mr. Leonard's left is Virgil Garvey, secretary of the Seattle club, who tried to dissuade Mr. Leonard from buying the box.

Personals

R. J. Holterman, manager of Fobes Supply Company, San Francisco, Calif., was elected chairman of the Pacific Coast Electrical Supply Jobbers' Association at the recent meeting held at the Hotel Del Monte, Del Monte, Calif. Mr. Holterman has been connected with

R. J. HOLTERMAN

the electrical business for over eighteen years and has, since 1921, held his present position. He started with the California Electrical Works, which later became the Western Electric Company, in San Francisco. Later he joined the force of the Holabird Electric Company, which concern was purchased about three years ago by the Fobes Supply Company. Mr. Holterman has been an active worker in the electrical field and has been identified with many of the progressive moves for the betterment of conditions.

A. S. Moody, Los Angeles district manager of the General Electric Company, was a recent visitor to San Francisco and Del Monte, attending the quarterly meeting of the Pacific Coast Electrical Supply Jobbers' Association at that place.

U. G. Jackson, city engineer of Kelso, Wash., for three and a half years, has resigned to enter private practice.

H. C. Miller, petroleum engineer of the United States Bureau of Mines, headquartered at San Francisco, Calif., spent several days in the oil fields of California gathering data for papers on safety work being prepared by the bureau.

S. E. Gates, manager at Spokane, Wash., for the General Electric Company, has returned from an extensive trip through the East, during which he noted a tremendous interest among business men in the current developments of the Pacific Coast and the Northwest.

W. R. Lyle, representative of the General Electric Company, was a recent San Diego visitor.

William Greenfield, of the Allied Industries, San Francisco, Calif., was a guest at the March 4 meeting of the San Diego Electric Club.

James G. Loomer, of the radio department of the Western Electric Company, Los Angeles, Calif., was recently presented with a gold mounted fountain pen by the Los Angeles Electric Club. The presentation was for conspicuous work done in the club's behalf during the past year.

R. O. Brenner has been transferred to the Spokane, Wash., office of Pacific States Electric Company as salesman. Mr. Brenner has been in the Portland, Ore., office for twelve years.

H. D. Randall, of the General Electric Company, Denver, Colo., and **E. A. West,** of the Denver Tramway Company, Denver, have been elected to the board of directors of the electrical bureau of the Denver Civic and Commercial Association. Through an error, announcement was made in the Feb. 15 issue of the Journal of Electricity that the above had been elected to the board of directors of the Denver Electrical Cooperative League.

R. R. Jones and **J. H. Gibson,** of the Arizona Electric Company, Winslow, Ariz., were recent Los Angeles, Calif., visitors.

N. A. C. Smith, chief chemist of the petroleum division of the Bureau of Mines, spent two weeks at the San Francisco office of the bureau during February. Mr. Smith left San Francisco on Feb. 21 accompanied by **M. J. Gavin,** refinery engineer of the bureau at San Francisco, to hold a conference in Salt Lake City, Utah, and Boulder, Colo., regarding bureau activities.

LeRoy H. Crandall, for the past three years assistant to the manager of the Isko-Pacific Company, San Francisco, Calif., has joined the staff of the California Electrical Cooperative Campaign. He will cover all of the territory from San Luis Obispo to Redding with the exception of the San Francisco Bay district.

W. H. Talbott was the San Diego, Calif., representative at the Pacific Coast Electrical Association technical committee meeting at Fresno early in March.

John E. Edgerton, president of the National Association of Manufacturers, gave a very interesting address at a dinner in Seattle, Wash., on March 14, at which were present several hundred of the leading business men of that section. Mr. Edgerton spoke on the human side of industrial relations and on the present political situation.

Philip F. Apfel, president of the Electric Heating & Manufacturing Company of Seattle, Wash., was a recent business visitor to Los Angeles. Mr. Apfel, while in the city, attended the meeting of the Electric Club and stated that business on the Pacific Coast in air and water heaters is excellent.

Erroll H. Beyersdorfer, for some time southern representative of the Walker & Pratt Manufacturing Company, Boston, Mass., has been appointed representative in the Northwest for that company. He will make his headquarters at Portland, Ore., and will cover the states of Washington, Oregon, Idaho, Montana and Utah.

Sam Mesick, for several years with Woodill-Hulse Electric Company, Los Angeles, Calif., has been made manager of the Bryan-Marsh lamp department of the Reiman Wholesale Electric Company, Los Angeles.

Roy E. Wenk, for several years connected with the engineering department of the Puget Sound Power & Light Company, Seattle, Wash., has been appointed chief draftsman of the Tacoma Railway & Power Company, Tacoma, Wash.

G. F. Pfleger, of the United States Electric Company, Los Angeles, Calif., is a recent visitor to San Francisco.

C. P. Bowie, engineer in charge of the San Francisco office of the United States Bureau of Mines, made an extended trip through the California oil fields in connection with various activities of the bureau being carried on in these fields.

Paul R. Miller, of the advertising department of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has been made district advertising manager of the company at Seattle, Wash.

Norwood W. Brockett, vice-president of the Puget Sound Power & Light Company, recently spoke before the Seattle Real Estate Association on "The Light and Power Industry in this district."

D. C. McClure, formerly electrical superintendent of the Public Service Company of Colorado, Denver, Colo., and since July 1, 1923, president of the Rocky Mountain Division of the National Electric Light Association, has been transferred to St. Joseph, Mo., where he will become general superintendent for Henry L. Doherty & Company. Mr. McClure was born in Coxsackie, N. Y., May 31, 1890. Since his graduation from Rensselaer Polytechnic Institute in 1913, he has been in the employ of the Doherty company, with the exception of his term of service in the World War. Prior to his entering the army in 1917, he was assistant superintendent of the electrical department of the Denver Gas & Electric Light Company, which has since that time been merged into the Public Service Company of Colorado; upon his re-

D. C. McCLURE

turn he rejoined the company as superintendent of the electrical and steam heating departments. He is a member of the American Institute of Electrical Engineering, Doherty Men's Fraternity, and a number of Denver organizations. **Harry H. Kerr,** who has been Mr. McClure's assistant for some time, has been appointed his successor, with the official rating of electrical engineer.

A. W. Copley and **J. F. Peters**, of the Westinghouse Electric & Manufacturing Company, San Francisco, Calif., recently spoke before the San Francisco section of the American Institute of Electrical Engineers on the subject of "Measurements of Surges in Power Transmission and Distribution Lines."

George C. Tenney, managing editor of the Journal of Electricity, is on an extended trip to Portland, Ore., Seattle, Wash., and other Northwestern points. While in the north Mr. Tenney will visit several industrial plants as well as jobbers, central stations and contractor-dealers.

Oliver E. Sholders, sales engineer in charge of domestic applications, of the Pacific Gas and Electric Company, San Francisco, Calif., has resigned, effective March 1, and will take a vacation of several weeks

H. A. Cram, representative in California, Arizona and Nevada for Landers, Frary & Clark, New Britain, Conn., has just returned from Los Angeles, Calif., to his offices in San Francisco.

Walter J. Dennis, of the Northwestern Electric Company, Portland, has recently been appointed to be assistant to L. T. Merwin, vice-president and general manager of the power company.

Percy Booth, vice-president and district manager of the Edison Electric Appliance Company, Ontario, Calif., and **Ray W. Turnbull**, assistant Pacific Coast sales manager, at Portland, Ore., visited Spokane on Feb. 21 in connection with general sales matters.

Burton Y. Gibson, Pacific Coast representative of the Walker & Pratt Manufacturing Company, Boston, Mass., is spending some time in the Northwest. He has already visited Seattle, Wash., and Portland, Ore., and will also take in Spokane, Wash., Boise, Idaho, and Salt Lake City, Utah.

R. E. Jerauld, who for the past seventeen years has been in charge of the central station and industrial business of the Salt Lake City, Utah, office of

R. E. JERAULD

the General Electric Company, has just been transferred to the Arizona territory with headquarters in Phoenix, where he will be resident agent of that company. The reorganization of the General Electric Company in the southwest territory, which occurred Jan. 1, placed the western portion of Arizona under A. S. Moody, manager of the Los Angeles, Calif., office.

A. E. Littler, for several years manager of the Sacramento, Calif., office of the Western Union Telegraph Company, has been made city superintendent of that company in San Francisco. Mr. Littler succeeds W. R. Edmonson who resigned to enter the real estate business.

A. E. Carroll, formerly with the Atlantic-Pacific Sales Company, San Francisco, Calif., has been appointed Pacific Coast district sales manager for the Rutenber Electric Company, Marion, Ind. Mr. Carroll will have offices and sample rooms in the Sharon Building, San Francisco.

George Kidd, president, and **A. T. Goward**, vice-president, of the British Columbia Electric Railway Company, sailed on February 13 for Naples, Italy, and will spend a vacation in Europe. They will visit some of the important recently constructed hydro-electric plants. Mrs. Kidd and Mrs. Goward accompanied their husbands.

A. D. Smith, purchasing agent of the Utah Power & Light Company, with general offices at Salt Lake City, Utah, has been elected president of the Purchasing Agents' Association of Utah. The following additional officers were also elected: Vice-president, **S. L. Sorensen**, purchasing agent of the Amalgamated Sugar Company; Secretary, **T. George Wood**, purchasing agent of the Utah-Idaho Sugar Company; Directors, **A. K. Bell**, purchasing agent of the American Smelting & Refining Company, and **W. H. Lovsey**, purchasing agent of the Utah Oil Refining Company.

B. R. Nichols, purchasing agent of the Tacoma, Wash., city light department, has been named chairman of the committee representing the electrical industry in the proposed Own-Your-Home Exhibit to be staged in Tacoma April 7-12.

J. C. Davidson, manager of the electrical department of the Hendrie & Bolthoff Manufacturing & Supply Company, Denver, Colo., heads the committee arranging an entertainment for the members of the Electrical Cooperative League in that city and which is scheduled for April 4.

Robert Arnold, test engineer from the laboratories of the Commonwealth Edison Company, Chicago, Ill., is on a leave of absence to the Coast, and has been spending some weeks in San Diego, Calif. He gave an interesting talk to the San Diego Electric Club on Feb. 26, on the principles of radio transmission.

R. R. Robley, operating engineer of the Portland Railway Light & Power Company, returned to Portland with his family on February 23, after spending nearly seven months at the Schenectady works of the General Electric Company. An exchange of engineers was arranged between the power company and the big manufacturers, and **H. M. Rankin** of the central station engineering department of the General Electric Company, exchanged places for a seven months period with Mr. Robley. Both have now returned to their former positions. This exchange will be of great benefit to both companies and to the Portland Railway Light and Power Company especially, as this company has recently installed a large amount of new switching and relay equipment requiring special knowledge in adjustments.

G. H. P. Dellman, recently elected president of the San Diego Electric Club, was born in Milwaukee, Wis., Oct. 22, 1882. It was while he served in the U. S. Navy, from 1898 to 1903, that he received his technical training in electrical engineering. Mr. Dellman came to California in 1903, and was with the test department of the Southern California Edison Company for a year. From 1904 to 1911 he was in charge of the test department of the Los Angeles Gas & Electric Corporation, whence he went to the General Electric Company as sales engineer. In

G. H. P. DELLMAN

1919 he was made manager of the Escondido (Calif.) Mutual Water Company, with which company he remained until 1920 when he joined the San Diego Consolidated Gas & Electric Company. With this company he was first associated with the electric distribution department, but for the past two years he has been the lighting sales engineer of the commercial department. He has been successful in inaugurating an extensive program of modern street lighting in the city of San Diego. This system is now being installed. Mr. Dellman has been an active member of the Electric Club ever since its foundation.

Malcolm H. Carpenter, formerly manager of the San Francisco, Calif., branch of the Mine and Smelter Supply Company, Denver, Colo., has taken over the management of the El Paso, Texas, branch of that company.

Irving B. Boyer, formerly with the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa., who some time ago joined the sales force of the Mine and Smelter Supply Company, Denver, Colo., as a lamp specialist, has been made a general salesman for that company, handling all of their material.

Obituary

Nicholas J. Hullin, for several years superintendent of construction for the Pacific Gas and Electric Company, Sacramento, Calif., died in that city on Feb. 25. Mr. Hullin had been ill for several months.

Trade Outlook

San Francisco

Business, in general, is holding up well. Wholesale buying is on a conservative basis, with more activity in spring merchandise. Recent rains in the northern part of the state have improved conditions. Trade in staple groceries is reported good. Steel products are in fair demand, with prices showing an advancing tendency. A good volume of canned and dried fruits is being exported to Europe, and an increase of ocean traffic is reported. The lumber demand has slackened, but good business is being done in agricultural implements, in spite of rather unfavorable weather conditions, and further activity is anticipated. Exports in this line to Japan have fallen off somewhat but are expected to improve.

Some brisk trading has been done recently on the mining exchange, due to report of a rich ore strike in the Comstock district. News dispatches indicate considerable activity around Tonopah also.

Building activities continue to increase. Permits for February totaled $3,912,166, a gain of 19 per cent over last February. This makes for good demand in electrical equipment and appliances. Bank clearings for the month amounted to $663,500,000, an increase of $73,100,000 over a year ago.

Los Angeles

Healthy trade conditions in Los Angeles are reflected in the February postal receipts as reported by the post office department, the total figures being $586,514.80 as compared with $483,076.59 for the corresponding period of last year, or an increase of approximately 21 per cent.

A new record in building was established during the month of February when 5,344 permits were issued with a valuation of $16,083,412. This is an approximate increase of more than $4,000,000 over the same period last year when permits to the amount of $12,080,310 were filed.

Retail electrical sales show a slight increase over the preceding two weeks. The volume is better than that of the same period a year ago, though it is not quite up to expectations. The wholesale electrical business has experienced very fair business during the past two weeks, this in a measure being due to the building construction under way.

Money for investment and building, as a rule, has been somewhat "tight" during the past few months, but shows a tendency to become easier. Labor conditions are good, though there is quite a bit of unemployment due to the inrush of laborers at this season of the year.

Portland

Portland's bank clearings in February, 1924, exceeded by 10 per cent those of any February in the history of the clearing house. During the same month the postal receipts increased 28 per cent over February of a year ago.

There is much building activity in residences and a fair amount of industrial construction, office buildings, etc. Permits for January and February this year far exceed those of 1923, which were the greatest in the history of the city.

The volume of shipping during January and February showed a gain of 25 per cent over the corresponding figure for 1923. This increase was due to the foreign and coastal trade, as the intercoastal trade showed a slight drop.

Lumber production continues at a good pace, with orders and shipments somewhat behind production. The California and Japanese markets are dull temporarily, but buying is quite active on the Atlantic Coast. Lumber trade in the Middle West was relatively quiet during the past few weeks, due probably to the bad weather that has prevailed in those sections.

Seattle

Construction in all lines is showing very rapid increase, after an unusually active winter period, and prospects for the early spring and summer are especially encouraging.

The lumber industry reports that the Atlantic seaboard trade is the bright spot in coast lumber circles. Weakness in Japanese sizes due to heavy offerings was the outstanding development in the export trade.

Electrical men state that the volume of buying has held up well during the past two weeks, with stocks in good shape and shipments moving freely. House-wiring devices are selling in volume, due to the large number of new homes contracted for. During the past week permits for 1,000 new residences were issued, and the majority of these homes were of the best bungalow type, modernly equipped. Demand for motors and large equipment has been active. Electric range sales volume has shown marked increase during the first two months of the year, due to continual sales work of the local firms and the many demonstrations throughout the city.

Spokane

With the continuation of remarkably mild weather, activity in all lines is becoming greater. A number of new dwellings and seven new commercial garages are announced, and men handling building supplies are confidently expecting an unusually good year.

One of the larger lumber mills went on double shift March 1, and plans on cutting 60,000,000 ft. this year. The Western Pine Association has announced that the cut of 74,000,000 ft. for January exceeded that of the same month in 1923 by 15 per cent, and that shipments in January were the largest since May, 1920.

Deliveries of live stock are running well above those of previous years, and the local packing plants are running at good output.

Mining activity in the Coeur d'Alene district is pronounced, owing to high prices for lead and zinc. The Hecla Company has placed its new plant in operation and constitutes an important factor in production.

The Washington Water Power Company has already placed large orders for copper insulators and other equipment necessary for its program of line construction, already announced in these columns.

Plowing is under way in the Palouse and Big Bend wheat districts, and excellent crops are anticipated.

The general feeling among all business men is extremely optimistic.

Salt Lake City

As farming is one of the most important industries in this section, the fact that the value of farm crops in Utah for the year 1923, exclusive of truck and canning varieties, is estimated at $36,610,000 as compared with $31,286,000 for the preceding year, is of considerable interest in connection with the trend of general business conditions. It is expected that the present year's figures will exceed those of 1923.

In the copper mining industry figures for 1923 show that the Utah Copper Company finished the year 1923 with greater production and profits than in any calendar period since 1918.

In Salt Lake City building permits in February were 64 in excess of those for the same month last year, and an extensive building program for the succeeding spring and summer months is anticipated.

Electrical dealers are concentrating their efforts during the month of March on the sale of washing machines. The Utah Power & Light Company reports a considerable increase in sales already for the month as compared with the same period last year.

Collections continue to improve, there is very little unemployment, and all indications are that the outlook for continued betterment of business conditions is exceptionally good.

Denver

Some of the slack noted in February business has been taken up and a sustained activity is again noted in basic lines, due allowance being made for other seasonal conditions.

Agriculture is preparing for big production this year, influenced by excellent soil and moisture conditions and by improvement in the position of leading crops, notably corn, sugar beets, potatoes, truck and dairy products. Winter wheat acreage has been reduced, but the growing condition at this time will, if maintained, provide a good yield.

Building operations, although less in volume than for the same period last year, still continue on a larger scale than in the other cities of the region and federal reserve district. February topped January by $140,000 with 586 permits totaling $1,532,350. Bank clearings dropped a trifle at $117,933,758.

There is no marked fluctuation in the volume of electrical business, due principally to industrial development. This is especially true in the Wyoming oil fields where a number of large producing companies are making extensive pumping and power improvements.

Jobbing lines are steady, except in copper products where a gradual price rise is being noted. Closely competitive quotations are being made.